XR-C210MK2/C212MK2/C213MK2

SERVICE MANUAL

AEP Model
UK Model
XR-C210MK2
German Model
XR-C212MK2
East European Model
XR-C213MK2

Photo : XR-C210MK2

Model Name Using Similar Mechanism	XR-C210/C212
Tape Transport Mechanism Type	MG-50EX-39

SPECIFICATIONS

Cassette player section

Tape track	4-track 2-channel stereo
Wow and flutter	0.08 % (WRMS)
Frequency response	30 – 18,000 Hz
Signal-to- noise ratio	
Cassette type	
TYPE II, IV	61 dB
TYPE I	58 dB

Tuner section

FM

Tuning range	XR-C210MK2/C212MK2 : 87.5 – 108.0 MHz XR-C213MK2 : 65.0 – 74.0 MHz, 87.5 – 108.0 MHz
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	XR-C210MK2/C212MK2 : 8 dBf XR-C213MK2 : 10 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 70 dB (mono)
*Harmonic distortion at 1 kHz	0.5% (stereo), 0.3% (mono)
Separation	35 dB at 1 kHz
Frequency response	30 – 15,000 Hz
Capture ratio	2 dB

MW/LW (SW, for the XR-C212MK2)

Tuning range	MW: 531 – 1,602 kHz LW: 153 – 281 kHz SW: 5,950 – 6,205 kHz
Antenna terminal	External antenna connector
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	MW: 30 µV LW: 50 µV SW: 50 µV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	22 W × 4 (at 4 ohms)

General

Output lead	Power antenna relay control lead Power amplifier control lead
Tone controls	Bass ±8 dB at 100 Hz Treble ±8 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 188 × 58 × 170 mm (w/h/d) not incl. projecting parts and controls
Mounting dimension	Approx. 182 × 53 × 153 mm (w/h/d) not incl. projecting parts and controls

—continued on next page—

MICROFILM

FM/MW/LW CASSETTE CAR STEREO
XR-C210MK2/C213MK2

FM/MW/SW CASSETTE CAR STEREO
XR-C212MK2

SONY®

Mass	Approx. 1.3 kg
Supplied accessories	S Commander RM-X1S (XR-C210MK2 : AEP, C212MK2/ C213MK2) (1) Power connecting cord (1) Mounting hardware (1 set) Chassis ground cord (1) Front panel case (1)

Design and specifications are subject to change without notice.

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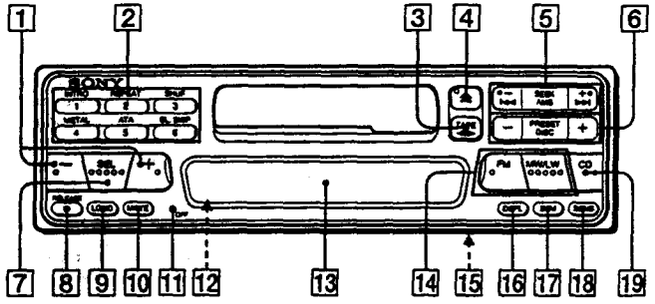
Button Locations



Refer to the pages in ● for details.

1 (volume/bass/treble/balance/fader control) button ❺❾

2 During radio reception:
Preset number buttons ❽

During tape/CD playback:
- INTRO button ❻❿⓫
- REPEAT button ❻❿⓫
- SHUF button ⓫
- METAL button ❻
- ATA (Automatic Tuner Activation) button ❻
- BL.SKIP button ❻

3 TAPE/◄II► (playback/transport direction change) button ❺

4 ≜ (eject) button ❺❾

5 SEEK/AMS button ❺❼❾⓫

6 PRESET/DISC button ❺❻❼❽⓫

7 SEL (control mode select) button ❺❾

8 RELEASE (front panel release) button ❹⓬

9 LOUD (loudness) button ❾

10 MUTE button ❾

11 OFF button ❹❺❾

12 Reset button (located on the front side of the unit hidden by the front panel) ❸
Press this button when you use this unit for the first time, when you have changed the car battery, or when the buttons of this unit do not function properly.

13 Display window

14 XR-C210MK2/C213MK2:
(radio on/band select) button ❺❼❽

XR-C212MK2:
(radio on/band select) button ❺❼❽
(traffic announcement) button ❾

15 POWER SELECT switch (located on the bottom of the unit)
See "POWER SELECT switch" in the installation/connections manual.

16 DSPL (display mode change/time set) button ❺

17 BTM (Best Tuning Memory) button ❽

18 SENS (sensitivity adjust) button ❼

19 CD (disc play/CD changer select) button ❺❿

The illustration of the front panel in this manual is of the XR-C210MK2.

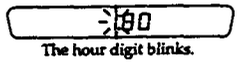
Setting the Clock

The clock has a 24-hour digital indication.

For example, setting it to 10:08

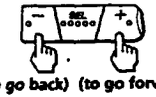
1 Display the time.
(Press the OFF or the DSPL button during the unit operation.)

2 Press the DSPL button for more than two seconds.



The hour digit blinks.

Set the hour digits.



(to go back) (to go forward)

3 Press the SEL button momentarily.

The minute digit blinks.

Set the minute digits.

(to go back) (to go forward)

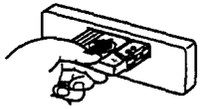
4 Press the DSPL button momentarily.

The clock activates.

Note
If the POWER SELECT switch on the bottom of the unit is set to the ⓑ position, the clock cannot be set unless the power is turned on. Set the clock after you have turned on the radio or started cassette playback.

Listening to Tape Playback

After inserting the cassette, playback will start automatically.



If a cassette is already inserted, press the TAPE button to start playback.
If you press during playback, the tape transport direction will change.

Indication of Tape Transport Direction

The side facing up is being played.

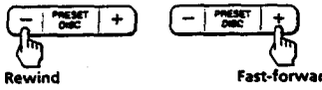
The side facing down is being played.

To stop playback,
eject the cassette by pressing the ≜ button or press the OFF button.
Playback stops also when you select another source (radio, CD) by pressing the FM, MW/LW (BAND) or CD button.

Ejecting the Cassette

Press the ≜ button.

Fast-winding the Tape



Rewind — Fast-forward

To start playback during rewinding or fast-forwarding, press the TAPE button.

This section is extracted from instruction manual.

Playing a CrO_2 or Metal Tape

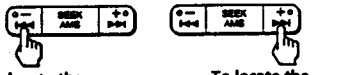
Press the (METAL) button when you want to listen to a CrO_2 (TYPE II) or metal (TYPE IV) tape. → "MTL" will appear on the display.
To cancel, press again.

Convenient Functions

Locating the Beginnings of the Tracks

— AMS (Automatic Music Sensor) Function

During playback, press either side of the SEEK/AMS button the number of times you wish to skip the tracks.



To locate the previous tracks

To locate the succeeding tracks

Up to nine tracks can be skipped.

If the blanks between the tracks are shorter than four seconds, or if there are noises, the AMS function will not work. Also, the unit may read long sections of low volume music or quiet sections on a track as blanks between tracks.

Searching the Desired Track

— Intro Scan Function

Press the (INTRO) button during playback. → "INTRO" appears on the display.
The first 10 seconds of all the tracks are played. When you find the desired track, press the button once more. The unit returns to the normal playback mode.

Playing Tracks Repeatedly

— Repeat Play Function

Press the (REPEAT) button during playback. → "REP" appears on the display.
When the currently played track is over, it will be played again from the beginning.
To cancel this mode, press the button again.

Radio Reception during Fast-forwarding or Rewinding of a Tape

— ATA (Automatic Tuner Activation) Function

Press the (ATA) button during playback. → "ATA" appears on the display.
When fast-forwarding or rewinding with the (− PRESET/DISC +) button, the tuner will turn on automatically.

Skipping Blanks Automatically during Tape Playback

— Blank Skip Function

Press the (BL.SKIP) button during playback. → "BL.SKIP" appears on the display.
Blanks longer than eight seconds will be automatically skipped during tape playback.

Tuning in a Station

Searching for the Stations Automatically

— Automatic Tuning

1 Select the desired band.
XR-C210MK2/C213MK2:

FM1 → FM2 → FM3 → FM1

MW ↔ LW

XR-C212MK2:

FM1 → FM2 → FM3 → MW → SW → FM1

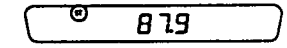
2 Press either side of the SEEK/AMS button to search for the station (automatic tuning).

For lower frequencies

For higher frequencies

The scanning stops when a station is received. Press either side of the button repeatedly until the desired station is received.

When an FM stereo program with a sufficient signal strength is tuned in,



the "ST" indication will appear.

To avoid the automatic tuning from stopping on stations too frequently (local seek mode), press the (MODE) button momentarily to get the "LCL" indication.
Only the stations with relatively strong signals can be tuned in. The local seek mode functions only when the automatic tuning is in operation.

If FM Stereo Reception is Poor

— Monaural Mode

Press the (MODE) button momentarily. → "MONO" appears on the display.
The sound will improve, but it will become monaural.

Tuning in by Adjusting the Frequency

— Manual Tuning

1 Select the desired band.
XR-C210MK2/C213MK2:

XR-C212MK2:

2 Press and hold either side of the PRESET/DISC button.
Release the button when the desired station is received.

For lower frequencies

For higher frequencies

PREVENTING ACCIDENTS!
When tuning in during driving, use the automatic tuning and the memory preset tuning instead of the manual tuning.

Memorizing Stations

Memorizing Stations Automatically

— BTM (Best Tuning Memory) Function

This function selects from the currently received band the stations with the strongest signals and memorizes them in order of their frequency.

1 Select the desired band.

XR-C210MK2/ C213MK2 :

XR-C212MK2:

2 Press the BTM button for more than two seconds.

- When there is no preset number indicated on the display window, stations will be stored on all preset number buttons on the currently selected band.
- When there is a preset number indicated on the display window, the unit will store stations on all preset number buttons from the one currently displayed.

For example, when you select FM2 and preset number 3 is displayed,
the operation will start from preset number 3 on FM2, and will stop at preset number 6 on FM3.

Memorizing Only the Desired Stations

1 Select the desired band.

XR-C210MK2/ C213MK2 :

XR-C212MK2:

2 Tune in the station which you wish to store on the preset number button.

3 Keep the desired preset number button (1 to 6) pressed for about two seconds until you hear a beep tone.

The number of the pressed preset number button appears on the display window.

Up to 6 stations on each band (FM1, FM2, FM3, MW and LW(SW)) can be stored on the preset number buttons in order of your choice. Therefore, 18 stations can be memorized on FM.
If you try to store another station on the same preset number button, the previously stored station will be erased.

Receiving the Memorized Stations

1 Select the desired band.

XR-C210MK2/ C213MK2 :

XR-C212MK2:

2 Press momentarily the preset number button on which the desired station is stored.

Note
If you press the preset number button for more than two seconds, the currently received station will be memorized again. To receive the previously memorized station, make sure that the preset number button is pressed only momentarily.

Press either side of the PRESET/DISC button momentarily to receive in order the stations stored in the memory (Preset Search Function).

1 → 2 → ... → 5 → 6 → 1 → ...

1 → 6 → 5 → ... → 2 → 1 → ...

Traffic Announcement Reception (XR-C212MK2)

Receiving Traffic Announcements

Press the SDK button. → "SDK" appears on the display.
The unit will search for a traffic information station.
When the station is tuned in, the "SK" indication will also appear.

When a traffic announcement starts → the "SDK" indication will flash.
The reception of the traffic announcement will override the current radio broadcast or tape or CD playback. When the announcement is over, the interrupted radio reception or tape or CD playback will be resumed.

To stop receiving the traffic announcements, press the SDK button again.

Notes
- *While the station is broadcasting a traffic announcement (with the "SDK" indication flashing), the SEEK/AMS, PRESET/DISC, SENS and preset number buttons will not be operational.*
- *While the unit is receiving a traffic information station (with the "SDK" flashing), the BTM function (page 8) cannot be activated.*
- *During MW and SW reception, the SDK function does not work; if you press the SDK button, the unit will automatically switch to FM1.*

Searching for another Traffic Information Station

Press the SEEK/AMS button while the "SDK" indication is lit but not flashing.

Hearing a Traffic Announcement at the Preset Volume Level

1 Adjust the volume to the desired level with the + or − button.

2 Press the 3 button while pressing the SDK button. → A beep sound will be heard and the volume level will be memorized.
When a traffic announcement starts, it is heard at the preset volume level.

Other Functions

Adjusting the Sound Characteristics

1 Select the item you want to adjust by pressing the SOUND button repeatedly.

VOL (volume) → BAS (bass) → TRE (treble) → BAL (balance) → FAD (fader) → VOL (volume)

2 Adjust the selected item by pressing either the + or − button.

Adjust within three seconds after selecting. (After three seconds the button will again serve as volume control button.)

Enjoying Bass and Treble even at Low Volume

— Loudness Function

Press the LOUD button. → "LOUD" will appear on the display.
Bass and treble will be reinforced. To cancel, press again.

Muting the Sound Quickly

— Mute Function

Press the MUTE button. → The "MUTE" indication flashes.
The sound is muted at once. To restore the previous volume level, press again.

This function will be also canceled when:
— the + or OFF button is pressed.
— ejecting a cassette by pressing the ⏏ button during tape playback.

Muting the Beep Tone

Press the 6 button while pressing the SOUND button.
To reobtain the beep tone, press these buttons again.

CD Changer Operation

(with the optional CD changer(s) connected)

Playing a CD

Press the [CD] button.
CD playback starts.

Locating the Beginnings of the Tracks

— AMS (Automatic Music Sensor) Function

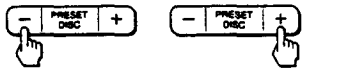
During playback, press either side of the SEEK/AMS button the number of times you wish to skip the tracks.

To locate the previous tracks — *To locate the succeeding tracks*

Locating the Desired Part of a Track

— Manual Search

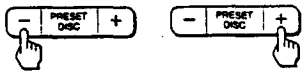
During playback, press and hold either side of the PRESET/DISC button. Release the button when you have found the desired part.



To reverse — *To forward*

Changing CDs

During playback, press either side of the PRESET/DISC button momentarily.



To return to the previous CD — *To advance to the next CD*

Selecting CD Changers

(with several CD changers connected)

Press the [CD] button during CD playback.
Each time you press, another CD changer will be selected.

Searching for the Desired Track — Intro Scan Function

Press the [INTRO 1] button during playback.
→ "INTRO" appears on the display.
The first 10 seconds of all the tracks on the currently selected disc are played in order. After the first disc is over, the next CD is played. When two or more CD changers are connected, after the last disc is played, CD playback moves on to the next CD changer.

When you find the desired track, press again. The unit returns to the normal CD playback mode.

Playing Repeatedly

— Repeat Play Functions

Playing the currently selected track repeatedly
— Track repeat

Press the [REPEAT 2] button during CD playback to get the "REP 1" indication.

Playing the currently selected disc repeatedly
— Disc repeat

Press the [REPEAT 2] button during CD playback to get the "REP 2" indication.

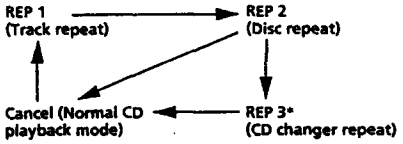
When the last track on the currently selected disc is over, CD playback is repeated from the beginning of that disc.

Playing the discs in the currently selected CD changer repeatedly
— CD changer repeat (when two or more CD changers are connected)

Press the [REPEAT 2] button during CD playback to get the "REP 3" indication.

When the last disc in the currently selected CD changer has been played, CD playback will be repeated from the first CD in this changer.

The function of the [REPEAT 2] button changes cyclically as follows:



** CD changer repeat (REP 3) mode functions only when two or more CD changers are connected to the unit. When only one CD changer is connected, the "REP 3" indication will not be displayed. In case you press the [REPEAT 2] button again while the "REP 2" indication is being displayed, the repeat mode will be canceled.*

Playing Tracks Randomly

— Shuffle Play Functions

Playing the tracks on the currently selected disc randomly
— Disc shuffle play

Press the [SHUF 3] button during CD playback to get the "SHUF 1" indication.

All tracks on the currently selected CD are played in random order. After each track has been played once, shuffle play will continue with the next CD.

Playing each track on each CD in the currently selected CD changer randomly
— CD changer shuffle play

Press the [SHUF 3] button during CD playback to get the "SHUF 2" indication.

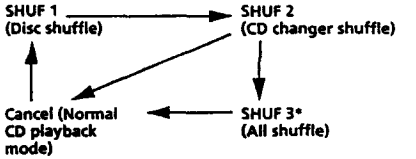
All tracks on each CD in the currently selected CD changer are played in random order.

Playing each track on each CD in all connected CD changers randomly
— All shuffle play (when two or more CD changers are connected)

Press the [SHUF 3] button during CD playback to get the "SHUF 3" indication.

All tracks on each CD in each CD changer connected are played in random order.

The function of the [SHUF 3] button changes cyclically as follows:



** The all-shuffle (SHUF 3) mode functions only when two or more changers are connected to the unit. When only one changer is connected, "SHUF 3" indication will not be displayed. In case you press the [SHUF 3] button again while "SHUF 2" is displayed, the shuffle play will be canceled.*

If you press the [INTRO 1] button during shuffle play, the first 10 seconds of all tracks will be played randomly.

EN

Connections

Caution

- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the **yellow** and **red** power input leads only after all other leads have been connected.
- Be sure to connect the red power input lead to the positive 12 V power terminal which is energized when the ignition key is in the accessory position.
- **Run all ground wires to a common ground point.**

If Your Car has No Accessory Position on the Ignition Key Switch — POWER SELECT Switch

The illumination on the front panel is factory-set to be turned on even when the unit is not being played. However, this setting may cause some car battery wear if your car has no accessory position on the ignition key switch. To avoid this battery wear, set the POWER SELECT switch located on the bottom of the unit to the ⓪ position, then press the reset button. The illumination is reset to stay off while the unit is not being played.

Note

The caution alarm for the front panel is not activated when the POWER SELECT switch is set to the ⓪ position.

Connexions

Précautions

- Cet appareil est conçu pour fonctionner sur courant continu de 12 V avec masse négative.
- Avant d'effectuer les connexions, débrancher la borne de terre de la batterie du véhicule pour éviter tout court-circuit.
- Brancher les fils d'entrée d'alimentation **jaune** et **rouge** seulement après avoir terminé tous les autres branchements.
- Veiller à ne pas raccorder le fil rouge d'entrée d'alimentation à la borne positive de 12 V qui est alimentée quand la clé de contact est sur la position accessoires.
- **Rassembler tous les fils de terre en un point de masse commun.**

Si l'appareil est utilisé dans une voiture dont la clé de contact n'a pas de position accessoires — Interrupteur POWER SELECT

L'éclairage du panneau avant est réglé en usine de manière à s'allumer même quand l'appareil ne fonctionne pas. Cependant, ce réglage risque d'épuiser la batterie si l'appareil est utilisé dans une voiture dont la clé de contact ne possède pas de position accessoires. Pour éviter d'épuiser la batterie, régler l'interrupteur POWER sur le socle de l'appareil sur la position ⓪, puis appuyer sur le bouton de réinitialisation. L'éclairage est réglé pour rester éteint quand l'appareil n'est pas utilisé.

Remarque

Quand l'interrupteur POWER SELECT est réglé sur la position ⓪, l'avertisseur du panneau avant ne fonctionne pas.

Anschluß

Vorsicht

- Dieses Gerät ist ausschließlich für eine negativ geerdete 12-V-Autobatterie bestimmt.
- Trennen Sie vor dem Anschließen des Geräts die Erdungsklemme der Batterie ab, um einen Kurzschluß zu vermeiden.
- **Schließen Sie das gelbe und rote Stromversorgungskabel erst an, wenn alle anderen Kabel bereits angeschlossen sind.**
- Leiten Sie das rote Stromversorgungskabel an einen positiven 12-V-Kontakt, an dem Spannung anliegt, wenn sich das Zündschloß in der Position I bzw. ACC (Position vor der Zündposition) befindet.
- **Schließen Sie alle Erdungskabel an einen gemeinsamen Massepunkt an.**

Wenn das Zündschloß Ihres Wagens keine Position I bzw. ACC besitzt — POWER SELECT-Schalter

Das Gerät ist werkseitig so voreingestellt, daß das Bedienfeld auch dann beleuchtet ist, wenn das Gerät nicht betrieben wird. Besitzt das Zündschloß Ihres Fahrzeugs keine Position I bzw. ACC, so ist die Beleuchtung ständig eingeschaltet und entzieht der Batterie Strom. Stellen Sie in einem solchen Fall den POWER SELECT-Schalter an der Unterseite des Geräts auf Position ⓪, und drücken Sie dann die Rücksetztaste. Bei ausgeschaltetem Gerät ist das Bedienfeld dann nicht mehr beleuchtet.

Hinweis

Der Warnton für die Frontplatte ertönt nicht, wenn der POWER SELECT-Schalter auf Position ⓪ gestellt ist.

Collegamenti

Attenzione

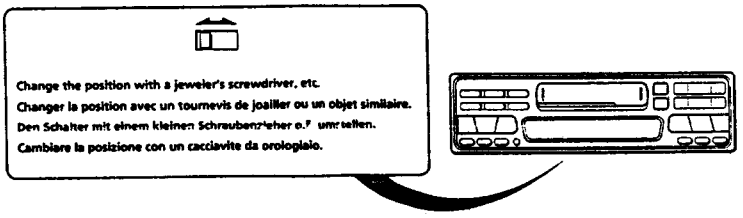
- Questo apparecchio è stato progettato per l'u solo a 12 V CC con massa negativa.
- Prima di eseguire i collegamenti, scollegare il terminale di massa della batteria dell'auto pe evitare cortocircuiti.
- Collegare i cavi di collegamento alimentazior **rosso** e **giallo** solo dopo aver collegato tutti g altri cavi.
- Assicurarsi di collegare il cavo rosso di collegamento alimentazione al terminale di alimentazione 12 V positivo che è sotto tensic quando la chiavetta di accensione è in posizic accessoria.
- **Portare tutti i cavi di massa a un punto di massa comune.**

Quando si usa l'apparecchio in un'auto priva di posizione accessoria per la chiavetta di accensione — Interruttore POWER SELECT

L'illuminazione del pannello anteriore è stata predisposta in fabbrica per l'attivazione anche quando non si usa l'apparecchio. Tuttavia quest regolazione può causare scaricamento della batteria dell'auto se si usa l'apparecchio in un'auto priva di posizione accessoria per la chiavetta di accensione. Per evitare ciò, regola su ⓪ l'interruttore POWER SELECT situato all base dell'apparecchio e quindi premere il pulsante di azzeramento. L'illuminazione rimane così spenta finché l'apparecchio rimane spento.

Nota

La suoneria di avvertimento per il pannello anteriore non si attiva quando l'interruttore POWER SELECT è in posizion ⓪.


Change the position with a jeweler's screwdriver, etc.
Changer la position avec un tournevis de joaillier ou un objet similaire.
Den Schalter mit einem kleinen Schraubenzieher o.ä. umstellen.
Cambiare la posizione con un cacciavite da orologiaio.

Reset Button

When the installation and connections are over, be sure to press the reset button with a ball-point pen etc.

Bouton de réinitialisation

Quand l'installation et les connexions sont terminées, appuyer sur le bouton de réinitialisation avec un stylo bille ou un objet pointu.

Rücksetztaste

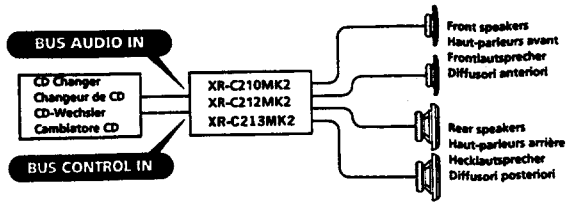
Nach der Installation und dem Anschluß muß die Rücksetztaste mit einem Kugelschreiber o.ä. gedrückt werden.

Pulsante di azzeramento

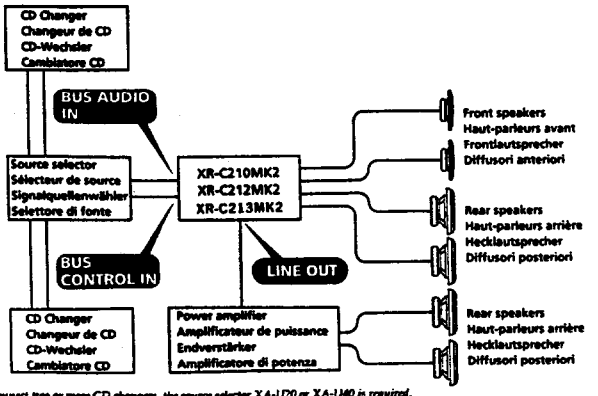
Dopo avere terminato l'installazione e i collegamenti, assicurarsi di premere il pulsante d azzeramento con la punta di una penna a sfera ecc.

Connection Diagram — Schémas de connexion — Anschlußdiagramm — Schema di collegamento

Example 1/Exemple 1/Beispiel 1/Esempio 1

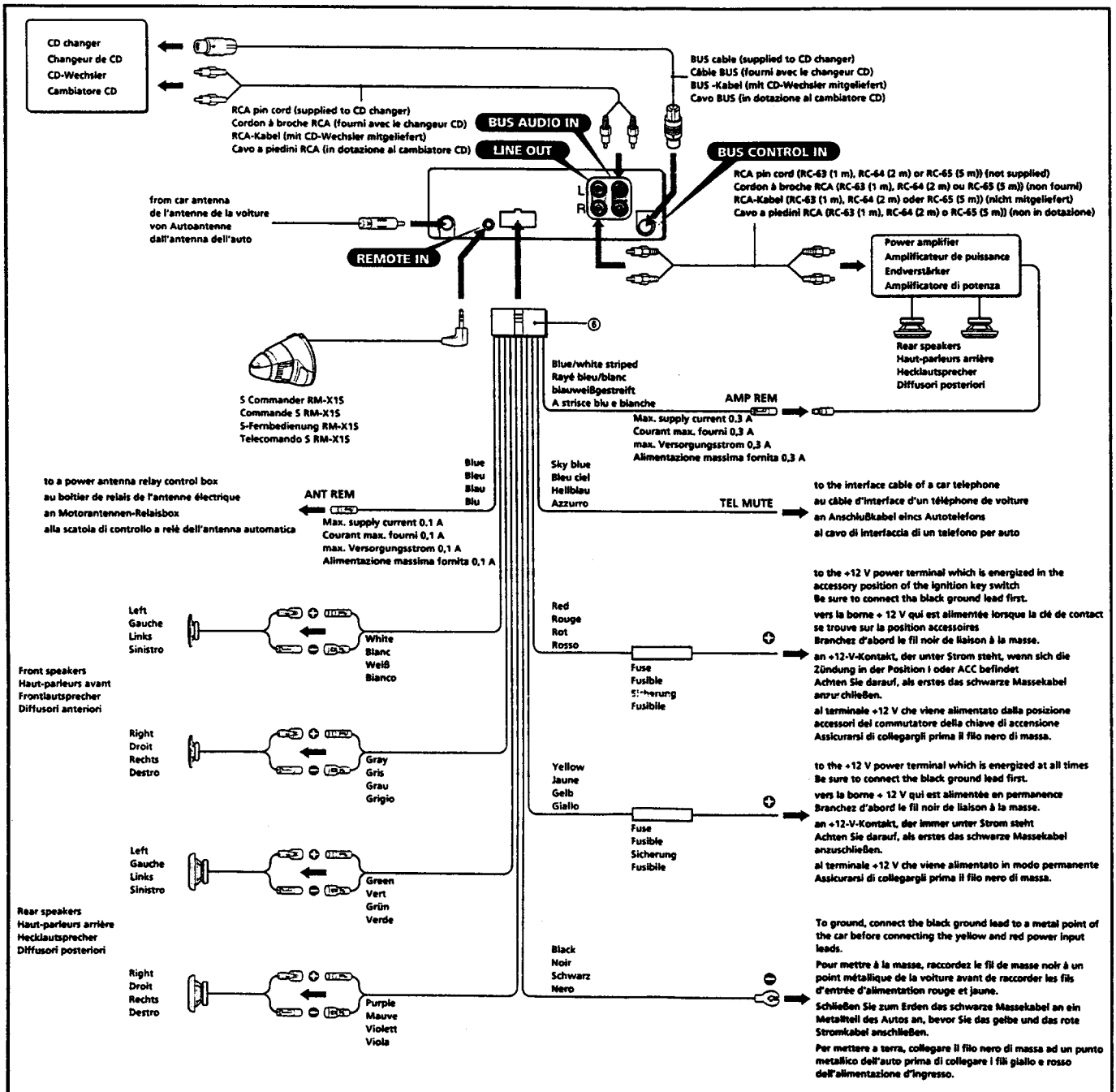


Example 2/Exemple 2/Beispiel 2/Esempio 2



If you connect two or more CD changers, the source selector XA-U20 or XA-U40 is required.
Vous devrez utiliser le sélecteur de source XA-U20 ou XA-U40, si vous raccordez au moins deux changeurs.
Bei Anschluß von zwei oder mehr CD-Wechslern wird der Signalquellenwähler XA-U20 oder XA-U40 benötigt.
Se si collegano due o più cambiatori CD, è necessario il selettore di fonte XA-U20 o XA-U40.

Connections of Example — Connexions de l'exemple — Anschlußbeispiel — Esempio di collegamenti


CD changer
Changeur de CD
CD-Wechsler
Cambiatore CD
RCA pin cord (supplied to CD changer)
Cordon à broche RCA (fourni avec le changeur CD)
RCA-Kabel (mit CD-Wechsler mitgeliefert)
Cavo a piedini RCA (in dotazione al cambiatore CD)
BUS AUDIO IN
LINE OUT
BUS cable (supplied to CD changer)
Câble BUS (fourni avec le changeur CD)
BUS -Kabel (mit CD-Wechsler mitgeliefert)
Cavo BUS (in dotazione al cambiatore CD)
BUS CONTROL IN
RCA pin cord (RC-63 (1 m), RC-64 (2 m) or RC-65 (5 m)) (not supplied)
Cordon à broche RCA (RC-63 (1 m), RC-64 (2 m) ou RC-65 (5 m)) (non fourni)
RCA-Kabel (RC-63 (1 m), RC-64 (2 m) oder RC-65 (5 m)) (nicht mitgeliefert)
Cavo a piedini RCA (RC-63 (1 m), RC-64 (2 m) o RC-65 (5 m)) (non in dotazione)
L
R
from car antenna
de l'antenne de la voiture
von Autoantenne
dall'antenna dell'auto
REMOTE IN
Power amplifier
Amplificateur de puissance
Endverstärker
Amplificatore di potenza
Rear speakers
Haut-parleurs arrière
Hecklautsprecher
Diffusori posteriori
S Commander RM-X1S
Commande S RM-X1S
S-Fernbedienung RM-X1S
Telecomando S RM-X1S
Blue/white striped
Rayé bleu/blanc
blauweißgestreift
A strisce blu e bianche
AMP REM
Max. supply current 0.3 A
Courant max. fourni 0,3 A
max. Versorgungsstrom 0,3 A
Alimentazione massima fornita 0,3 A
Sky blue
Bleu ciel
Himmelblau
Azzurro
TEL MUTE
to the interface cable of a car telephone
au câble d'interface d'un téléphone de voiture
an Anschlußkabel eines Autotelefons
al cavo di interfaccia di un telefono per auto
to a power antenna relay control box
au boîtier de relais de l'antenne électrique
an Motorantennen-Relaisbox
alla scatola di controllo a relè dell'antenna automatica
ANT REM
Blue
Bleu
Blau
Blu
Max. supply current 0.1 A
Courant max. fourni 0,1 A
max. Versorgungsstrom 0,1 A
Alimentazione massima fornita 0,1 A
Red
Rouge
Rot
Rosso
Fuse
Fusible
Sicherung
Fusibile
to the +12 V power terminal which is energized in the accessory position of the ignition key switch
Be sure to connect the black ground lead first.
vers la borne + 12 V qui est alimentée lorsque la clé de contact se trouve sur la position accessoires
Branchez d'abord le fil noir de liaison à la masse.
an +12-V-Kontakt, der unter Strom steht, wenn sich die Zündung in der Position I oder ACC befindet
Achten Sie darauf, als erstes das schwarze Massekabel anzuschließen.
al terminale +12 V che viene alimentato dalla posizione accessori del commutatore della chiave di accensione
Assicurarsi di collegargli prima il filo nero di massa.
Yellow
Jaune
Gelb
Giallo
Fuse
Fusible
Sicherung
Fusibile
to the +12 V power terminal which is energized at all times
Be sure to connect the black ground lead first.
vers la borne + 12 V qui est alimentée en permanence
Branchez d'abord le fil noir de liaison à la masse.
an +12-V-Kontakt, der immer unter Strom steht
Achten Sie darauf, als erstes das schwarze Massekabel anzuschließen.
al terminale +12 V che viene alimentato in modo permanente
Assicurarsi di collegargli prima il filo nero di massa.
Black
Noir
Schwarz
Nero
To ground, connect the black ground lead to a metal point of the car before connecting the yellow and red power input leads.
Pour mettre à la masse, raccordez le fil de masse noir à un point métallique de la voiture avant de raccorder les fils d'entrée d'alimentation rouge et jaune.
Schließen Sie zum Erden das schwarze Massekabel an ein Metallteil des Autos an, bevor Sie das gelbe und das rote Stromkabel anschließen.
Per mettere a terra, collegare il filo nero di massa ad un punto metallico dell'auto prima di collegare i fili giallo e rosso dell'alimentazione d'ingresso.
Front speakers
Haut-parleurs avant
Frontlautsprecher
Diffusori anteriori
Left
Gauche
Links
Sinistro
White
Blanc
Weiß
Bianco
Right
Droit
Rechts
Destro
Gray
Gris
Grau
Grigio
Rear speakers
Haut-parleurs arrière
Hecklautsprecher
Diffusori posteriori
Left
Gauche
Links
Sinistro
Green
Vert
Grün
Verde
Right
Droit
Rechts
Destro
Purple
Mauve
Violett
Viola

Notes on the control leads

- *The power antenna control lead (blue) supplies +12 V DC when you turn on the tuner or when you activate the ATA (Automatic Tuner Activation) function.*
- *A power antenna without relay box cannot be used with this unit.*

Memory hold connection

When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition key is turned off.

Notes on speaker connection

- *Before connecting the speakers, turn the unit off.*
- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not attempt to connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.*

Remarques sur les fils de contrôle

- *Le fil de contrôle de l'antenne électrique (bleu) fournit du courant continu de +12 V quand le tuner est mis sous tension ou quand la fonction ATA (Automatic Tuner Activation) est activée.*
- *Une antenne électrique sans boîtier de relais ne peut pas être utilisée avec cet appareil.*

Connexion pour la conservation de la mémoire

Lorsque le fil d'entrée d'alimentation jaune est connecté, le circuit de la mémoire est alimenté en permanence même si la clé de contact est sur la position d'arrêt.

Remarques sur la connexion des haut-parleurs

- *Avant de raccorder les haut-parleurs, mettre l'appareil hors tension.*
- *Utiliser des haut-parleurs ayant une impédance de 4 à 8 ohms et une capacité adéquate sous peine de les endommager.*
- *Ne pas raccorder les bornes du système de haut-parleurs au châssis de la voiture et ne pas connecter les bornes du haut-parleur droit à celles du haut-parleur gauche.*
- *Ne pas tenter de raccorder les haut-parleurs en parallèle.*
- *Ne pas raccorder des haut-parleurs actifs (avec amplificateurs intégrés) aux bornes de haut-parleur de l'appareil sous peine de les endommager. Veiller à raccorder des haut-parleurs passifs à ces bornes.*

Hinweise zu den Steuerleitungen

- *Die Motorantennen-Steuerleitung (blau) gibt beim Einschalten des Tuners und beim Aktivieren der ATA-Funktion (Automatic Tuner Activation) +12 V Gleichspannung ab.*
- *Eine Motorantenne ohne Relaisbox kann mit diesem Gerät nicht verwendet werden.*

Zur Stromversorgung des Speichers

Wenn das gelbe Stromversorgungskabel angeschlossen ist, wird der Speicher stets (auch bei ausgeschalteter Zündung) mit Strom versorgt.

Hinweise zum Lautsprecheranschluß

- *Schalten Sie das Gerät aus, bevor Sie die Lautsprecher anschließen.*
- *Verwenden Sie Lautsprecher mit einer Impedanz zwischen 4 und 8 Ohm und ausreichender Belastbarkeit. Ansonsten können die Lautsprecher beschädigt werden.*
- *Verbinden Sie die Lautsprecheranschlüsse nicht mit dem Wagenchassis, und verbinden Sie auch nicht die Anschlüsse des rechten mit denen des linken Lautsprechers.*
- *Versuchen Sie nicht, Lautsprecher parallel anzuschließen.*
- *An die Lautsprecheranschlüsse dieses Geräts dürfen nur Passivlautsprecher angeschlossen werden. Schließen Sie keine Aktivlautsprecher (Lautsprecher mit eingebauten Verstärkern) an, da diese sonst beschädigt werden können.*

Nota sui cavi di collegamento

- *Il cavo di controllo dell'antenna automatica (blu) fornisce +12 V CC quando si accende il sintonizzatore o quando si attiva la funzione ATA (Automatic Tuner Activation).*
- *Non è possibile usare un'antenna automatica senza la scatola a relè con questo apparecchio.*

Collegamento per la conservazione della memoria

Quando il cavo di ingresso alimentazione giallo è collegato, viene sempre fornita alimentazione al circuito di memoria anche quando la chiavetta di accensione è spenta.

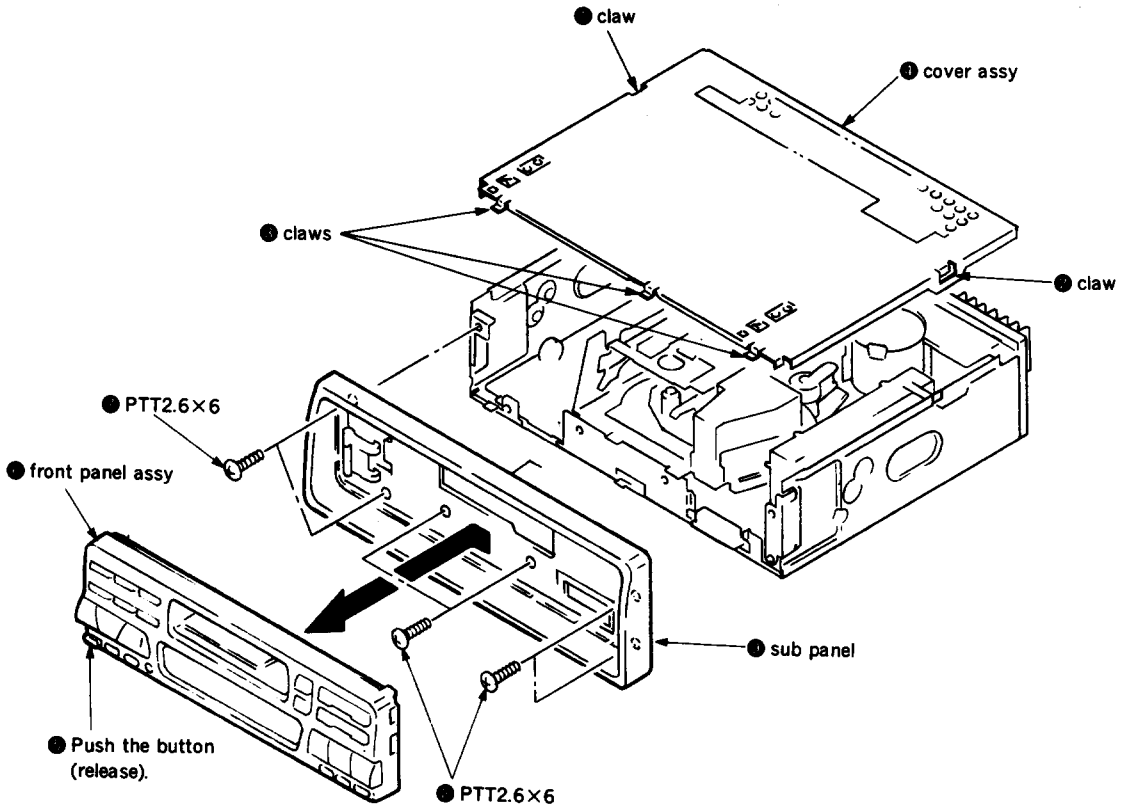
Note sul collegamento dei diffusori

- *Prima di collegare i diffusori spegnere l'apparecchio.*
- *Usare diffusori di impedenza compresa tra 4 e 8 ohm e con capacità di potenza adeguata, altrimenti i diffusori possono essere danneggiati.*
- *Non collegare i terminali del sistema diffusori al telaio dell'auto e non collegare i terminali del diffusore destro a quelli del diffusore sinistro.*
- *Non collegare i diffusori in parallelo.*
- *Non collegare alcun diffusore attivo (con amplificatore incorporato) ai terminali diffusori dell'apparecchio perché questo può danneggiare i diffusori attivi. Assicurarsi di collegare diffusori passivi a questi terminali.*

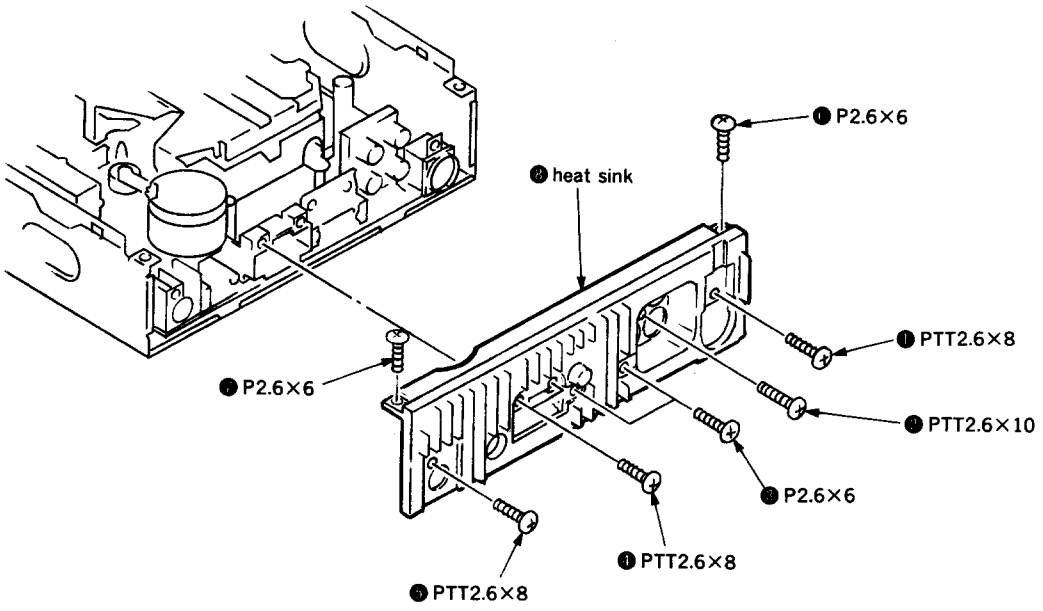
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

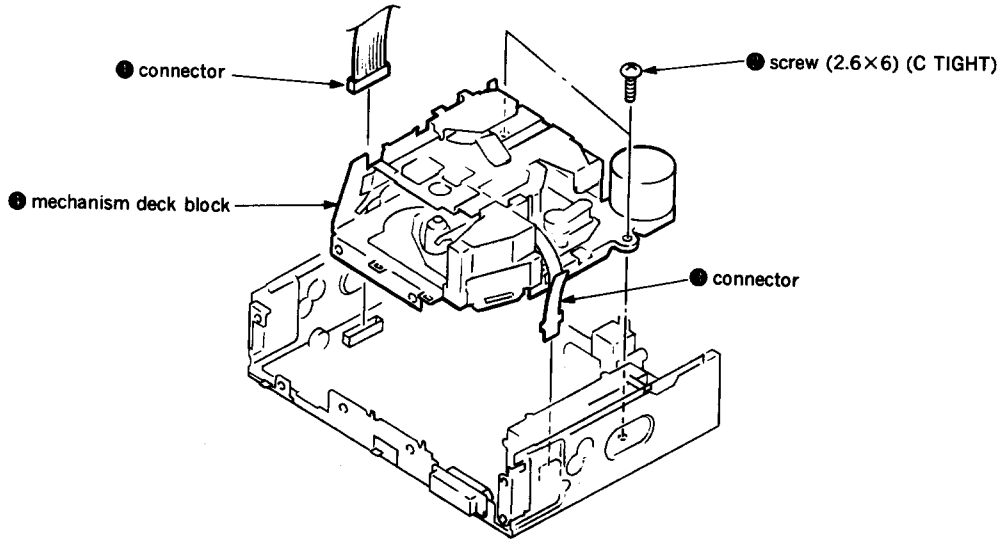
2-1. SUB PANEL



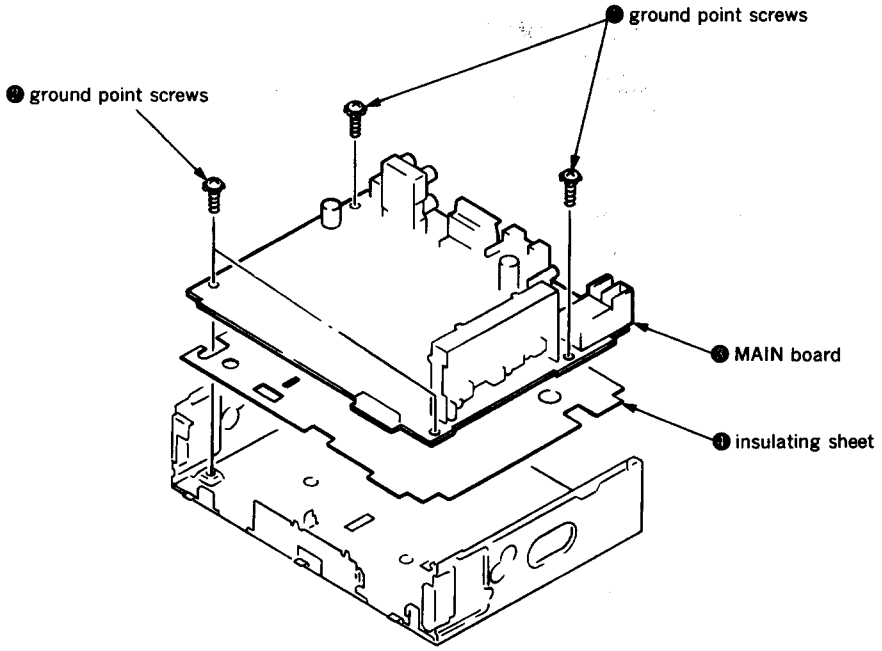
2-2. HEAT SINK



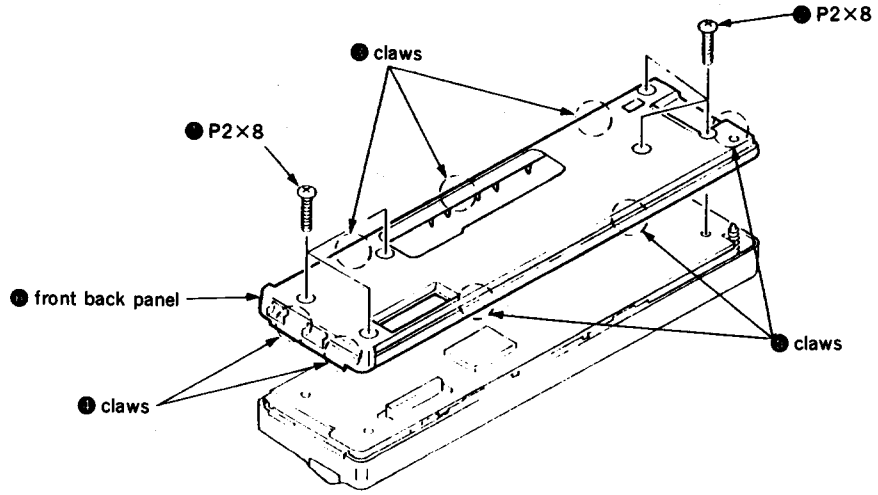
2-3. MECHANISM DECK BLOCK



2-4. MAIN BOARD



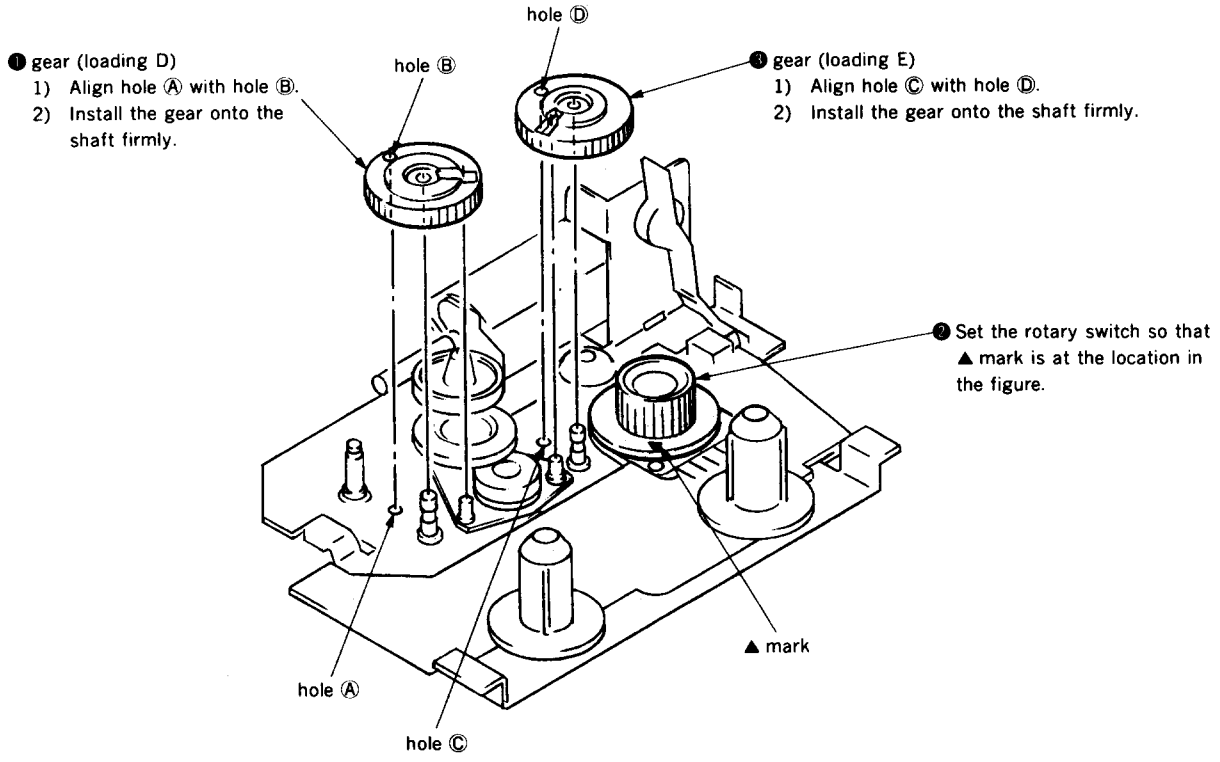
2-5. FRONT BACK PANEL



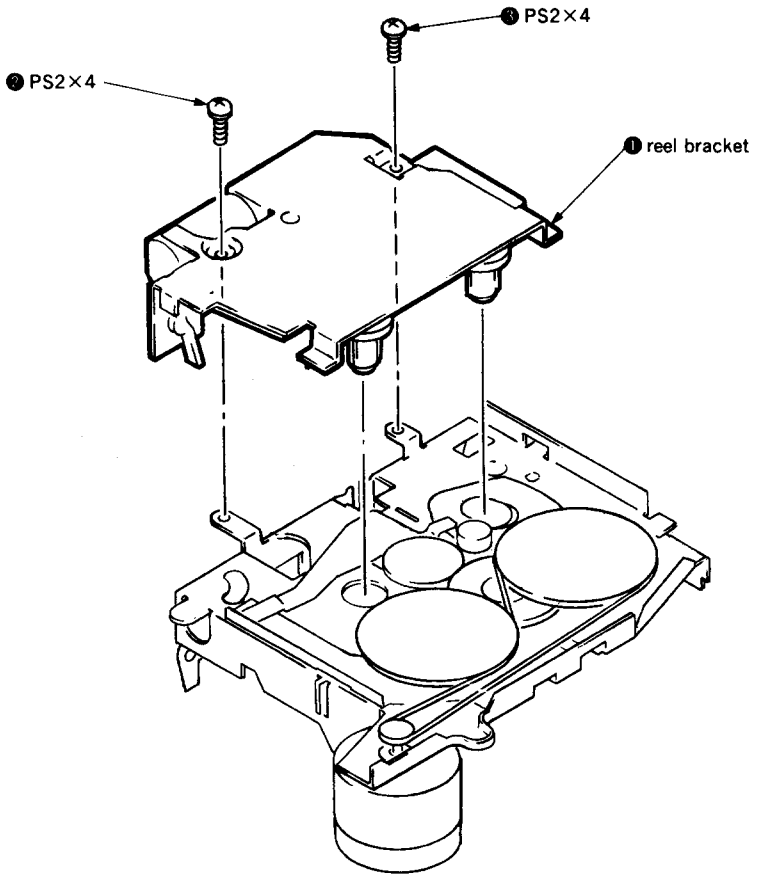
SECTION 3
ASSEMBLY OF MECHANISM DECK

Note : Follow the assembly procedure in the numerical order given.

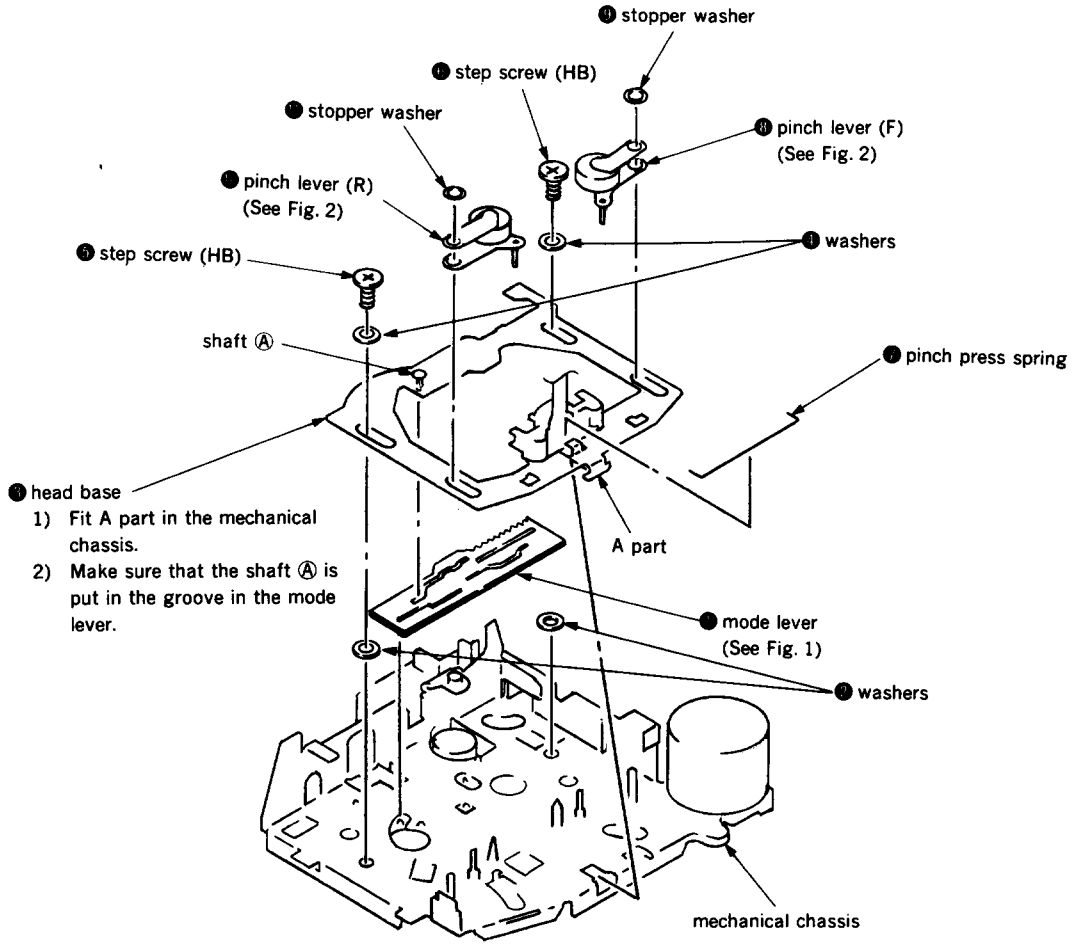
3-1. INSTALLING THE LOADING GEARS


❶ gear (loading D)
1) Align hole Ⓐ with hole Ⓑ.
2) Install the gear onto the shaft firmly.
hole Ⓑ
hole Ⓓ
❸ gear (loading E)
1) Align hole Ⓒ with hole Ⓓ.
2) Install the gear onto the shaft firmly.
❷ Set the rotary switch so that ▲ mark is at the location in the figure.
▲ mark
hole Ⓐ
hole Ⓒ

3-2. INSTALLING THE REEL BRACKET



3-3. INSTALLING THE MODE LEVER AND PINCH LEVERS



1) Align • mark on the rotary switch with hole on the mode lever.
2) Make sure that the two shafts and three projections are located as shown below.

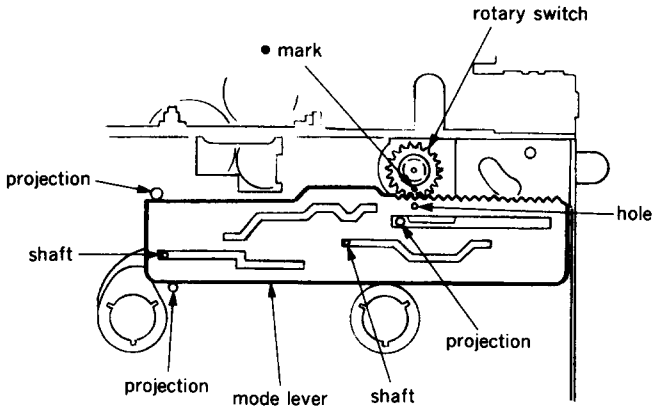


Fig. 1

1) Put the shafts of the pinch levers in the pinch press spring on its head side.

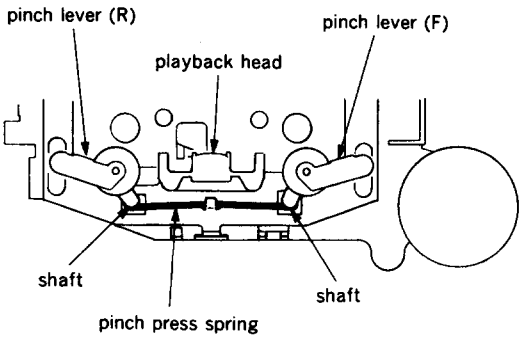


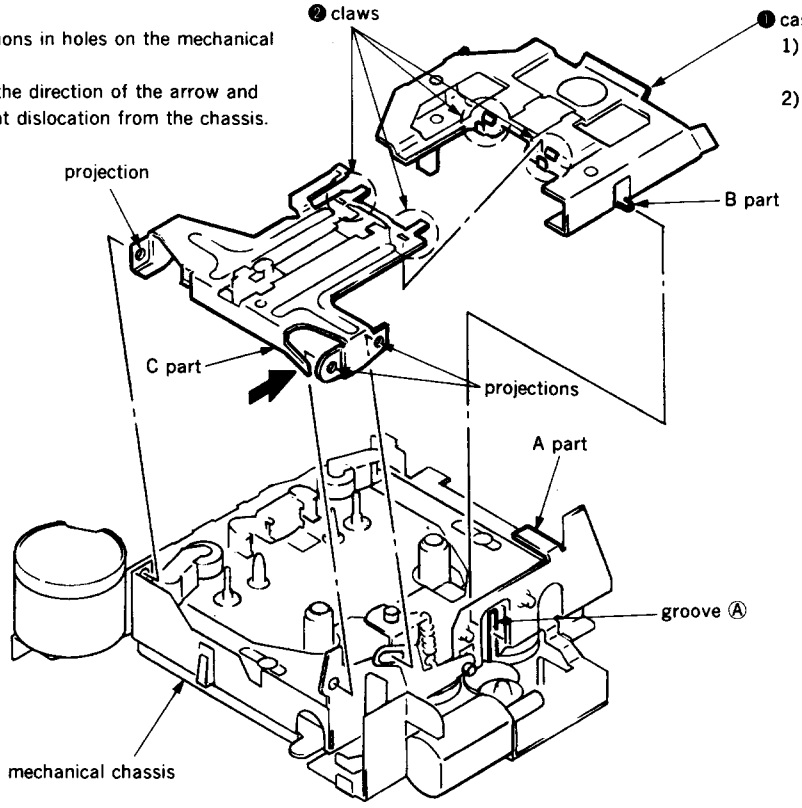
Fig. 2

3-4. INSTALLING THE CASSETTE HOUSING

❸ housing hanger
1) Fit three projections in holes on the mechanical chassis.
2) Bend C part in the direction of the arrow and fasten to prevent dislocation from the chassis.

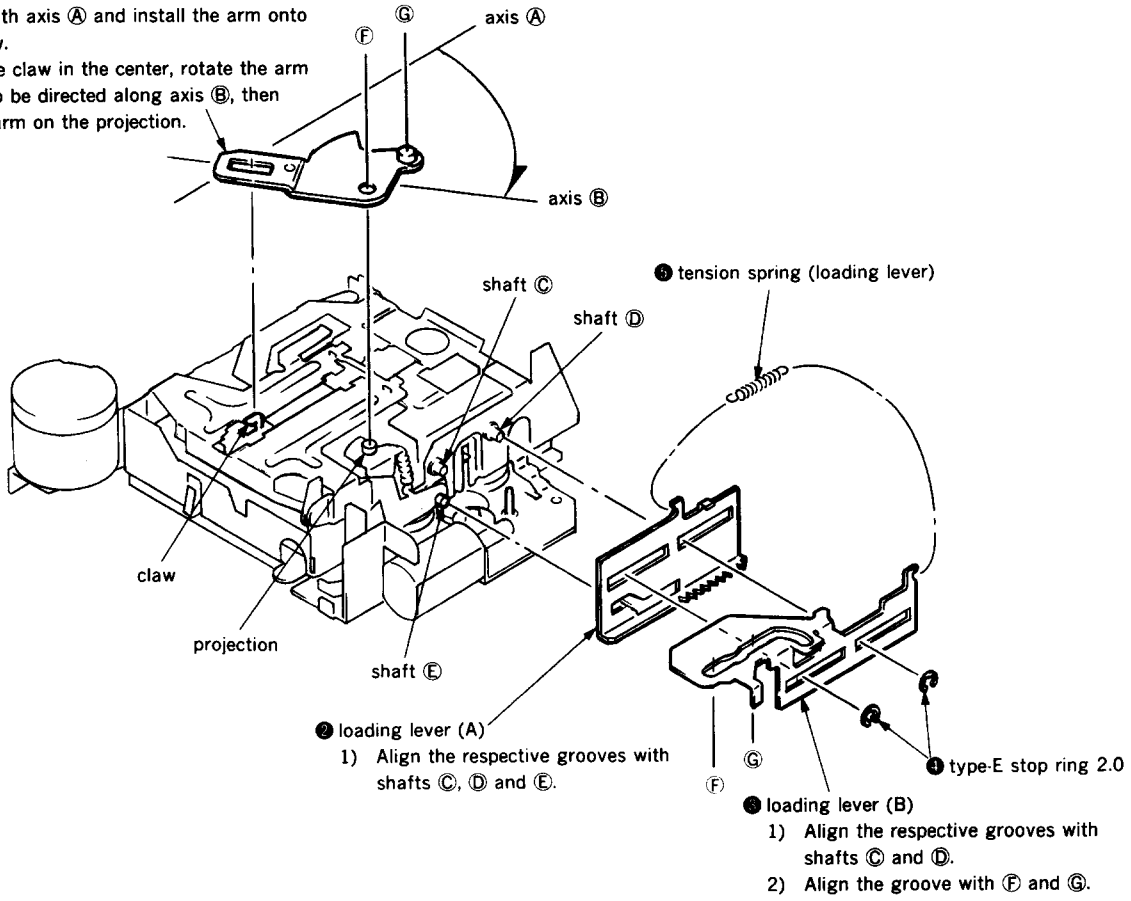
❷ claws

❶ cassette housing
1) Put the cassette housing under A part.
2) Fit B part in groove Ⓐ.

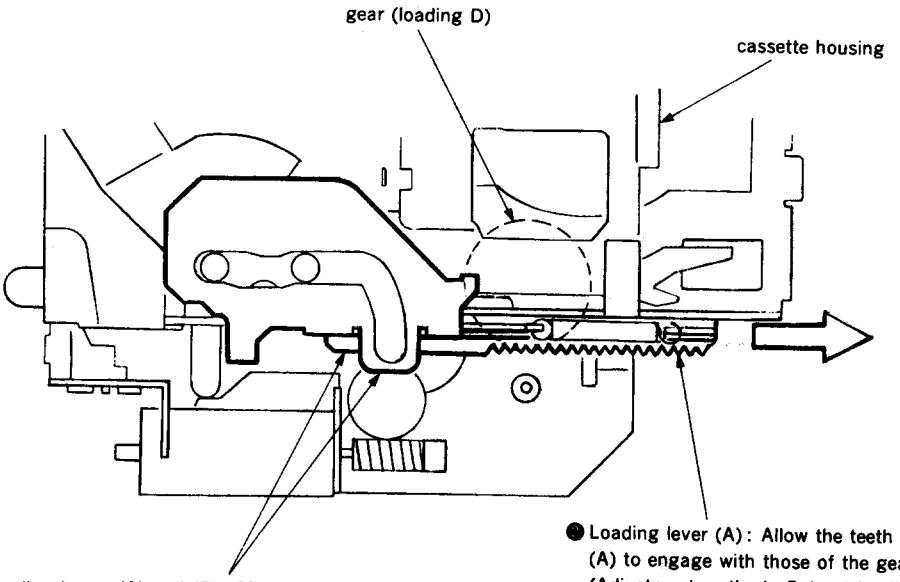


3-5. INSTALLING THE LOADING LEVER

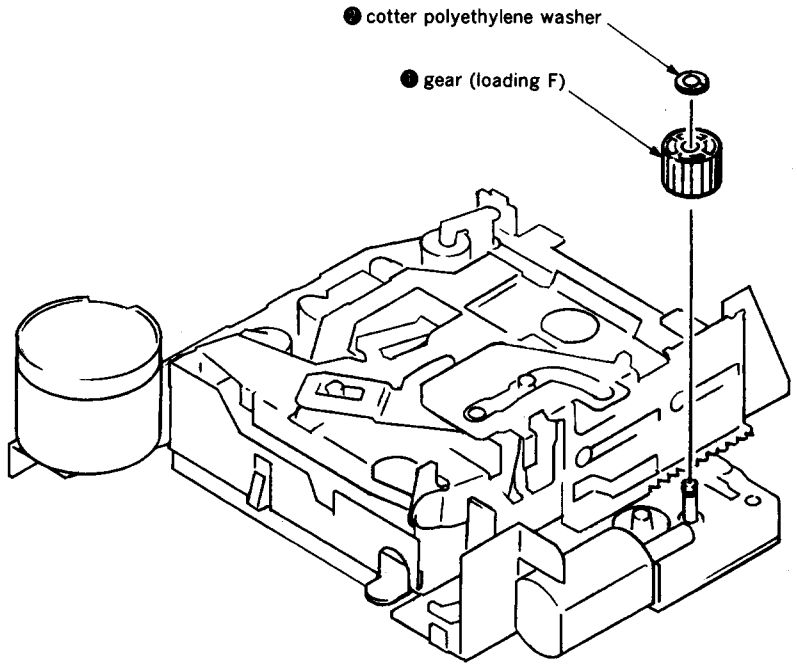
❶ suction arm
1) Align with axis Ⓐ and install the arm onto the claw.
2) With the claw in the center, rotate the arm so as to be directed along axis Ⓑ, then fit the arm on the projection.



3-6. POSITIONING THE LOADING LEVERS


gear (loading D)
cassette housing
● Loading levers (A) and (B): Move loading levers (A) and (B) in the direction of the arrow.
(The cassette housing is put down fully at this time.)
● Loading lever (A): Allow the teeth of loading lever (A) to engage with those of the gear (loading D).
(Adjustment method: Retract loading lever (A) by 0.2 to 0.5mm in the opposite direction of the arrow.)

3-7. INSTALLING THE GEAR (LOADING F)



SECTION 4
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Wipe the following components with an absorbent cotton cloth moistened with alcohol before adjustment:
   PB head　　Pinch roller
   Idler　　Rubber belt
   Capstan
2. Demagnetize the PB head using a head demagnetizer.
3. Be careful not to use a magnetized screwdriver.
4. After the adjustment is completed, lock the adjustment parts using screws.
5. Unless otherwise specified, make adjustments at the specified voltage (14.4V).

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	30−65g•cm (0.42−0.90 oz•inch)
FWD Back Tension		0.5−4.5g•cm (0.01−0.06 oz•inch)
REV	CQ-102RC	30−65g•cm (0.42−0.90 oz•inch)
REV Back Tension		0.5−4.5g•cm (0.01−0.06 oz•inch)
FF, REW	CQ-201B	60−200g•cm (0.83−2.78 oz•inch)

Tape Tension Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 90g (more than 3.18 oz)
REV	CQ-403R	

SECTION 5
ELECTRICAL ADJUSTMENTS

TEST MODE

This set have the test mode function. In the test mode, FM Auto Scan/Stop Level and MW Auto Scan/Stop Level adjustments can be performed easier than it in ordinaly procedure.

〈Set the Test Mode〉

1. Set the "OFF" mode.
2. Push the preset [4] button.
3. Push the preset [5] button.
4. Press the preset [1] button for two seconds.
5. Then the display indicates all lights, the test mode is set.

〈Release the Test mode〉

1. Push the "OFF" button.

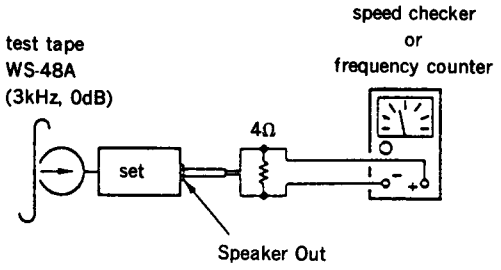
See the adjustment location from on page 18 for the adjustment.

DECK SECTION　**0dB=0.775V**

Tape Speed Adjustment

Procedure:

1. Put the set into the FWD PB mode.



Specification: Constant speed

Speed checker	Frequency counter
−1.5 to +2.5%	2,955 to 3,075Hz

Adjustment Location: See page 18.

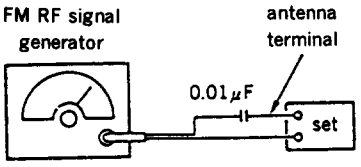
TUNER SECTION | **0dB=1μV**

Cautions during repair
When the front end is defective, replace it by a new one because its internal block is difficult to repair.

FM Auto Scan/Stop Level Adjustment

Setting :

FM button (C210MK2/C213MK2) : FM
TUNER button (C212MK2) : FM

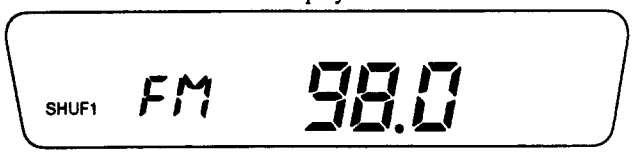


Carrier frequency : 98.0MHz
Output level : 22dB (12.6μV)
Mode : mono
Modulation : 1kHz, 22.5kHz deviation

Procedure :

1. Set to the test mode. (See page 15.)
2. Push the [FM] button (C210MK2/C213MK2) or [TUNER] button (C212MK2) and set to FM.

Display

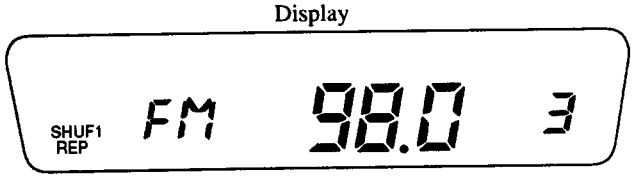


3. Push the preset [3] button.

Display

4. Adjust with the volume RV3 on TU1 so that put light "REP" indication on the display window.
   But, in case of already indicated "REP", turn the RV3 so that put out light "REP" indication and adjustment.

Display

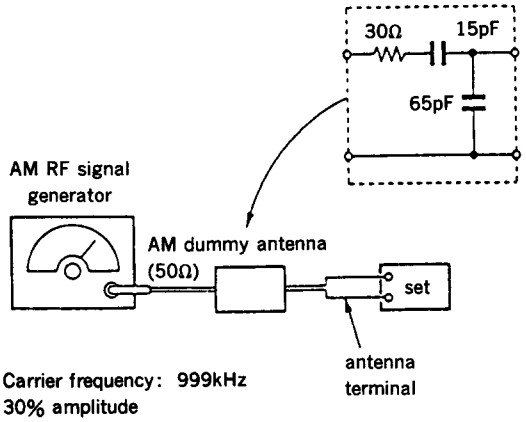


Adjustment Location : See page 18.

MW Auto Scan/Stop Level Adjustment

Setting :

MW/LW button (C210MK2/C213MK2) : MW
TUNER button (C212MK2) : MW



Carrier frequency : 999kHz
30% amplitude modulation by 400Hz signal
Output level : 33dB (44.7μV)

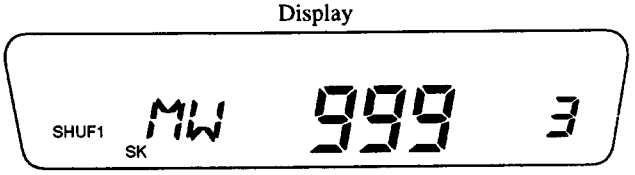
Procedure :

1. Set to the test mode. (See page 15.)
2. Push the [MW/LW] button (C210MK2/C213MK2) or [TUNER] button (C212MK2) and set to MW.

Display

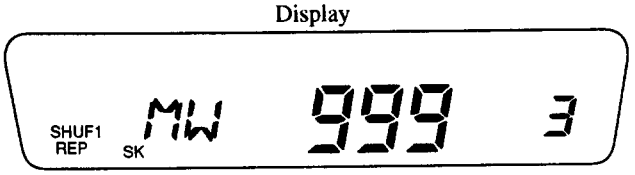
3. Push the preset [3] button.

Display



4. Adjust with the volume RV1 on TU1 so that put light "REP" indication on the display window.
   But, in case of already indicated "REP", turn the RV1 so that put out light "REP" indication and adjustment.

Display

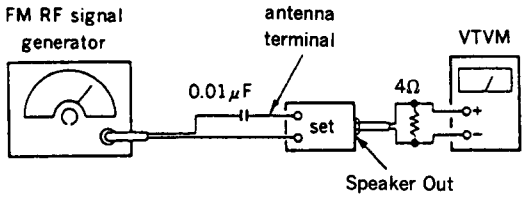


Adjustment Location : See page 18.

High Cut Control Effect Adjustment

Setting :

FM button (C210MK2/C213MK2) : FM
TUNER button (C212MK2) : FM



Carrier frequency : 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : 10kHz, 40kHz deviation

Procedure :

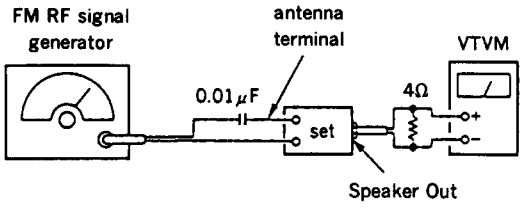
1. Tune the 98.0MHz.
2. The then output level is supposing that (A) dB.
3. Adjust with the volume RV2 on TU1 so that the output level is (A)−5dB then signal generator input set to 20dB.

Adjustment Location : See page 18.

FM Noise Focus Adjustment

Setting :

FM button (C210MK2/C213MK2) : FM
TUNER button (C212MK2) : FM



Carrier frequency : 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : 1kHz, 75kHz deviation

Procedure :

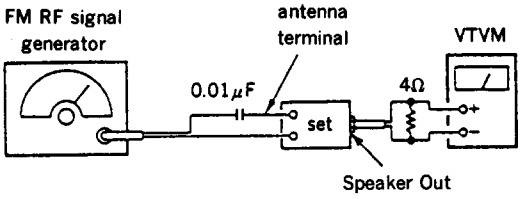
1. Tune the 98.0MHz.
2. The then output level is supposing that (B) dB.
3. Adjust with the volume RV5 on TU1 so that the output level is (B)−30dB then signal generator input set to −20dB.

Adjustment Location : See page 18.

FM Stereo Separation Adjustment

Setting :

FM button (C210MK2/C213MK2) : FM
TUNER button (C212MK2) : FM



Carrier frequency : 98.0MHz
Output level : 70dB (3.2mV)
Mode : stereo
Modulation : main : 1kHz, 20kHz deviation (53%)
sub : 1kHz, 20kHz deviation (53%)
19kHz pilot : 7.5kHz deviation (10%)

Procedure :

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV4 on TU1 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV4 on TU1 for minimum reading.

L-CH Stereo separation : Ⓐ−Ⓑ
R-CH Stereo separation : Ⓒ−Ⓓ
The separations of both channels should be equal.

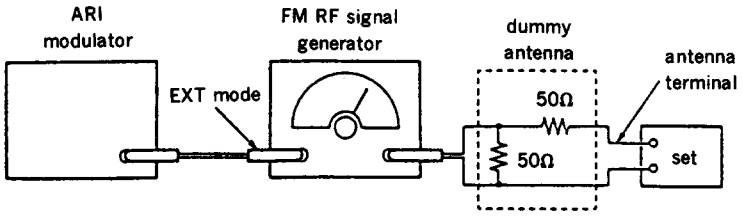
Specification : Separation more than 30dB

Adjustment Location : See page 18.

SDK Adjustment (XR-C212MK2 only)

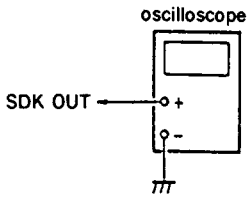
Setting :

SDK (Traffic Announcement) button : ON

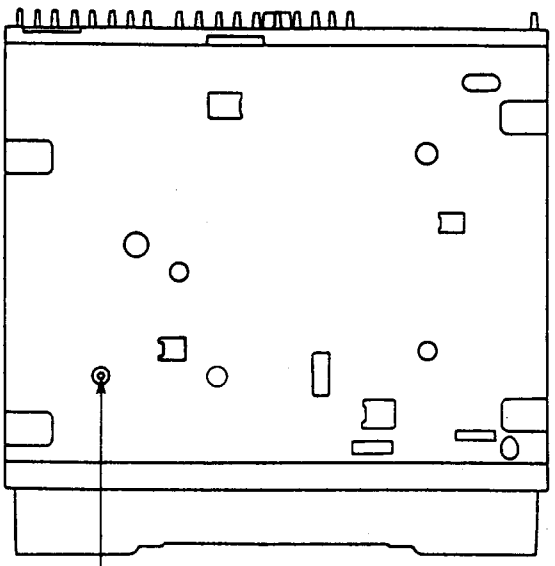


ARI modulation
SK : 1.5%
DK : 30%
BK : 60%

Carrier frequency : 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : 1kHz, 7.5kHz deviation



—SET LOWER VIEW—

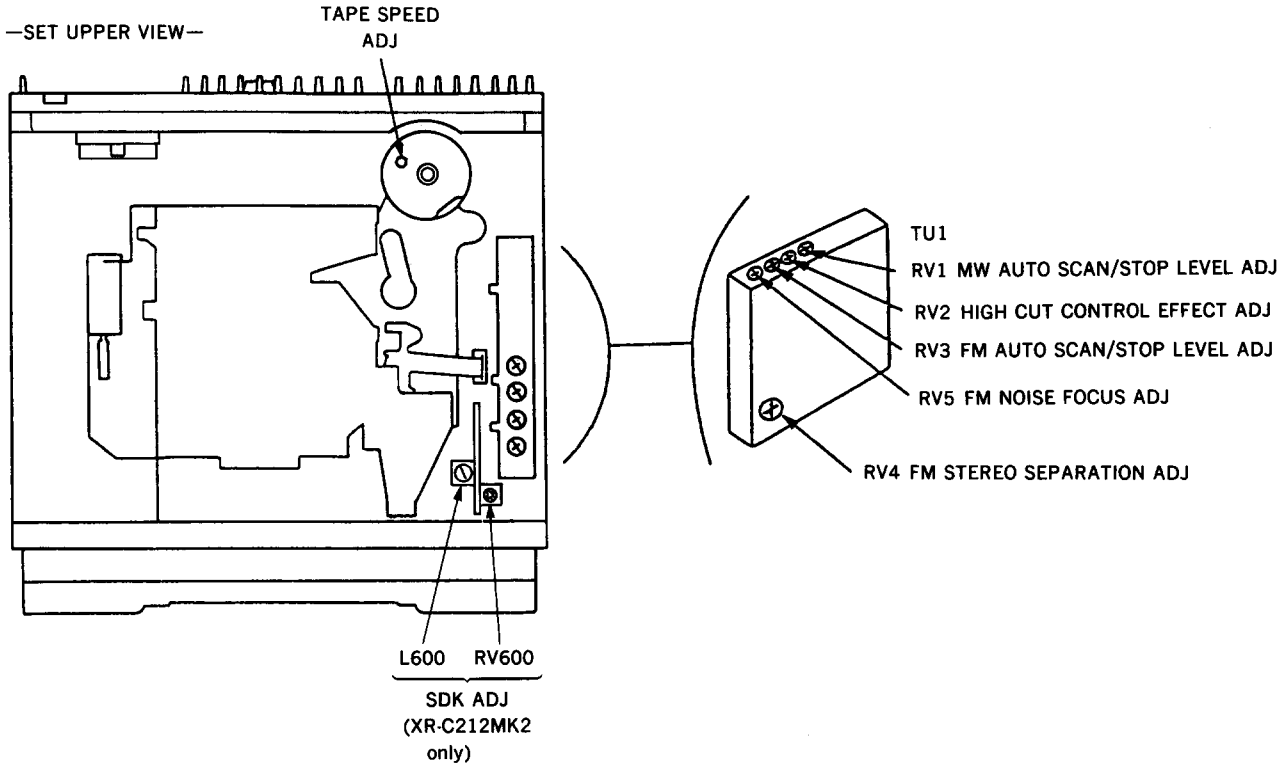


(SDK OUT)
SDK ADJ
(XR-C212MK2
only)

Procedure :

1. Adjust L600 and RV600 so that the output waveform become the maximum.

Adjustment Location :



SECTION 6
DIAGRAMS

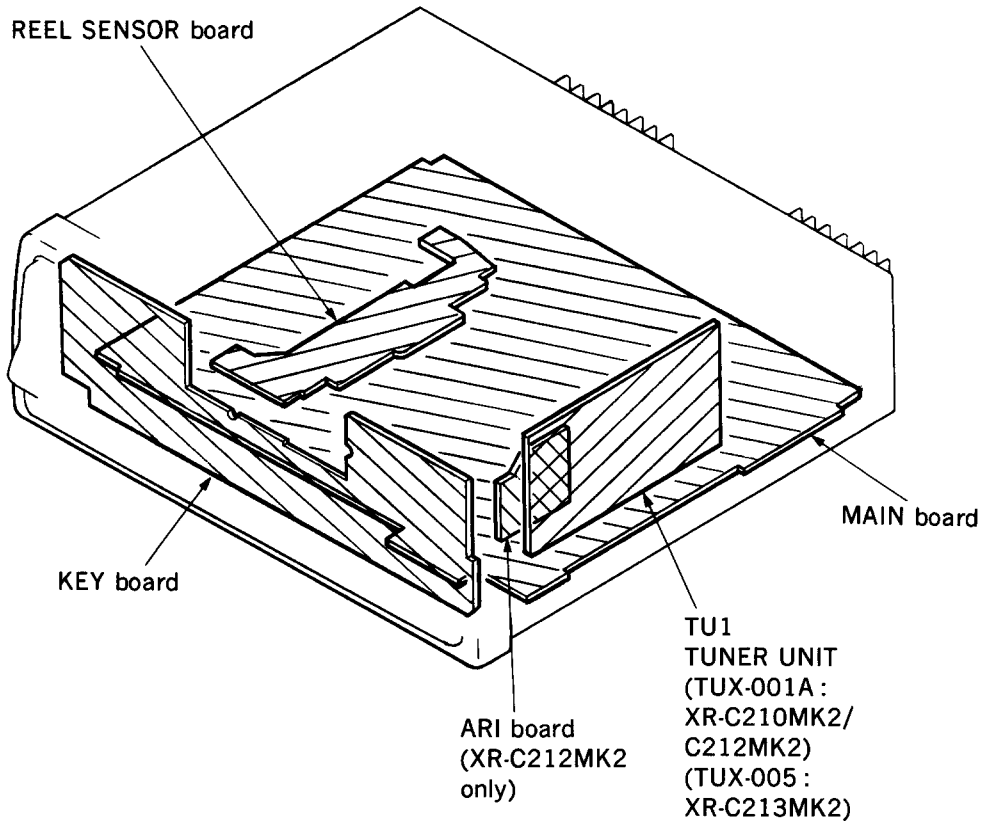
6-1. IC PIN DESCRIPTION

• IC301 μPD75518GF-283-3B9 (System Control)

Pin No.	Pin Name	I/O	Pin Description
1	KI0	I	KEY input
2	VREF	I	A/D reference voltage input
3, 4	VDD	—	Power supply terminal
5	NC	—	No connection
6	P-ON	O	At P-ON : High output
7	ILL-ON	O	At ACC-ON : High output (P-SEL : ON) At P-ON : High output (P-SEL : OFF)
8	COLOR	—	No used.
9	MUTE	O	At MUTE : High output
10	AUX-MUTE	—	No used.
11	DOLBY-ON/OFF	—	Not used.
12	TUNER-MUTE	O	Except for TUNER : High output
13	TAPE-MUTE	O	Except for TAPE PLAYBACK : High output (At movement on FF, REW and AMS : Low output)
14	AMP-ON	O	Inner power amplifier control terminal. At AMP-ON : High output
15	C-MOTOR	O	Capstan motor control terminal. At MOTOR-ON : High output
16	LCD-INH	O	INHIBIT signal to LCD driver IC. At Low output : Light off
17	TEST MODE	I	At Low input : TEST MODE 1. Input available at timing only of RESET L to H and BU CHECK L to H.
18	LCD-DATA	O	DATA output terminal to LCD driver IC.
19	LCD-CLK	O	CLOCK output terminal to LCD driver IC.
20	LCD-CE	O	LATCH output terminal to LCD driver IC.
21	VOL-CE	O	LATCH output terminal to VOL IC.
22	PLL-CE	O	LATCH output terminal to PLL IC.
23	VOL. PLL-CLK	O	CLOCK output terminal to VOL and PLL IC.
24	VOL. PLL-DATA	O	DATA output terminal to VOL and PLL IC.
25	PLL DATA-IN	I	DATA input terminal from PLL IC.
26	NOR/MTL	I/O	At AUTO METAL : METAL input terminal. At METAL : Low input, at NORMAL : High input. At no AUTO METAL : METAL output terminal. At METAL : High output, at NORMAL : Low input.
27	EJECT	O	LOADING MOTOR control terminal. At moving in the direction of EJECT : High output.
28	LOAD	O	LOADING MOTOR control terminal. At moving in the direction of LOAD and PLAY.
29—32	POS4—POS1	I	MD position detection terminal
33	GND	—	GND
34	REEL2	I	MD reel table rotation detection terminal. FWD supply side
35	REEL1	I	MD reel table rotation detection terminal. FWD take-up side
36	AUTO-MTL	—	Connect to GND.
37	AMS-IN	I	TAPE music with/without detection terminal. Low input : With music, High input : Without music
38	EEPROM-DATA	—	Connect to GND.
39	EEPROM-CLK	—	Not used.
40	N/R	O	NORMAL/$\overline{\text{REVERSE}}$ output terminal
41	TAPE-ON	O	OR output of LM•EJECT and LM•LOAD. At one side ACTIVE : High output, at REEL detection : High output
42	SYSTEM RESET	O	UNILINK $\overline{\text{SYSTEM RESET}}$ terminal. Low output : SYSTEM RESET

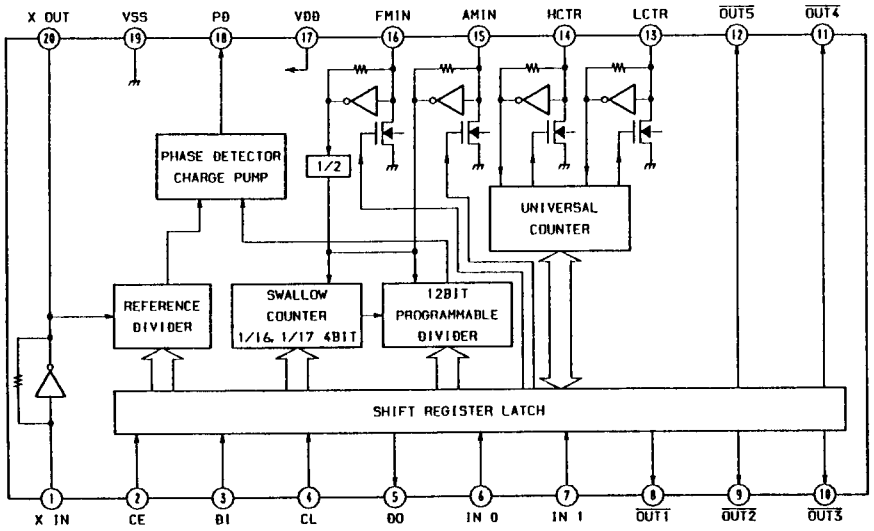
Pin No.	Pin Name	I/O	Pin Description
43	BUS-IN	O	For BUS CONTROL terminal
44	CLK-OUT	O	For BUS CONTROL terminal
45	BEEP	O	For piezoelectric buzzer output terminal
46	ACC-CHECK	I	Accessory detection terminal, Low input : ACC ON
47	KEY-ACK	I	KEY ACKNOWLEDGE input terminal. For KEY insert input
48	C-ALARM	I	Caution alarm with/without initial setting terminal. Low input : With caution alarm
49	SIRCS-IN	I	SIRCS (REM DET) input terminal
50	DATA-IN	I	For BUS CONTROL terminal
51	DATA-OUT	O	For BUS CONTROL terminal
52	CLK-IN	I	For BUS CONTROL terminal
53	BU. CHECK	I	Back Up voltage detection terminal
54	VSS	—	GND
55	XT1	—	Connect to GND.
56	XT2	—	Not used.
57	IC	—	Connect to GND.
58	X1	—	Connect to crystal. (4.19MHz)
59	X2	—	Connect to crystal. (4.19MHz)
60	RESET	I	RESET input
61, 62	—	—	Connect to GND.
63	SK	I	High input : With SK
64	DK	I	High input : With DK
65	SD	I	High input : With SD
66	TEL-MUTE	I	Low input : 20dB audio mute
67	ST-IN	I	Low input : Stereo
68	N-SW	I	Low input : With front panel
69	AM-ON	O	At TUNER ON : High output
70	FM-ON	O	At FM (both playing and behind) : High output
71	KEY-ACT	O	Reverse pin ⑤ and Active output terminal
72	—	—	Not used.
73	A. GND	—	A/D GND
74	DOLBY. SEL	I	Connect to GND.
75	P-SEL	I	POWER SELECT switch input. High input : ON, Low input : OFF. (Low input : Setting without ACC position)
76	DEST1	I	Destination setting terminal
77	DEST0	I	Destination setting terminal
78	TPMODE	I	TP MODE input terminal
79	S-METER	I	FM S meter input terminal
80	KI1	I	KEY input terminal

6-3. CIRCUIT BOARDS LOCATION

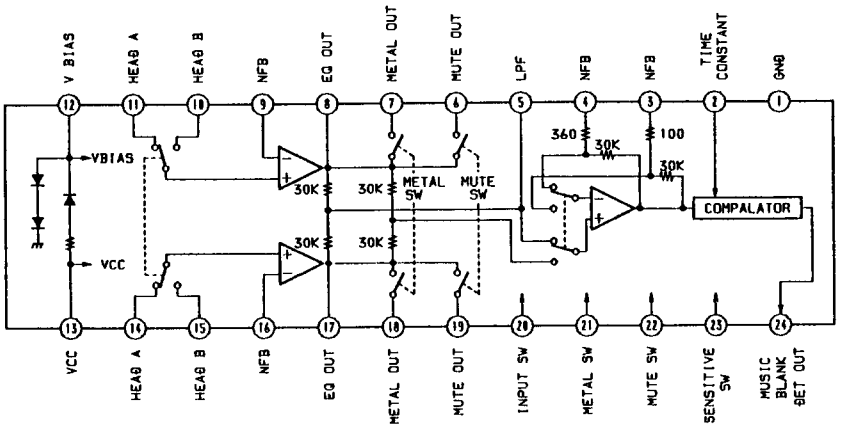


• IC Block Diagrams

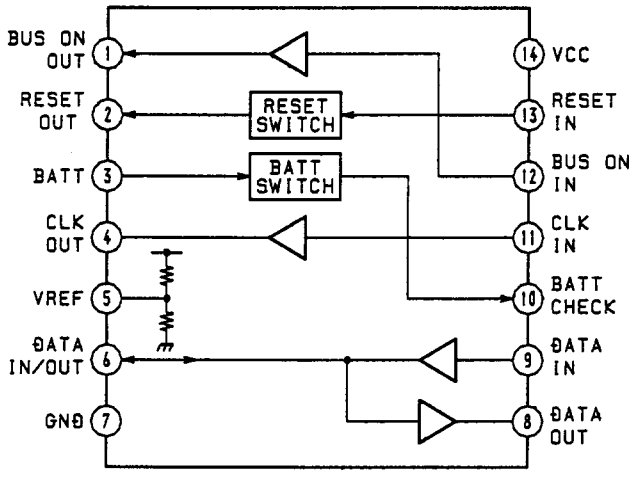
IC1 LC7216M



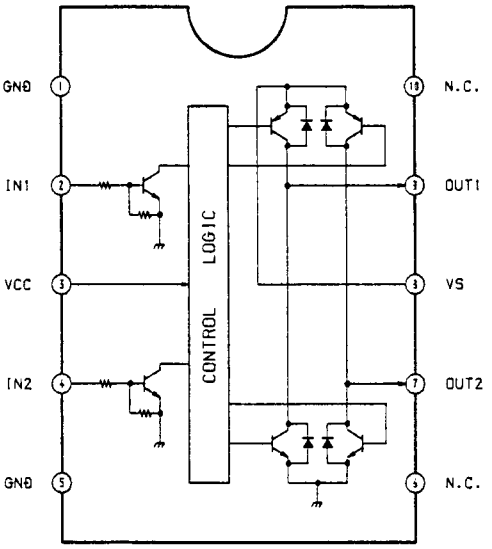
IC2 BA3430FS



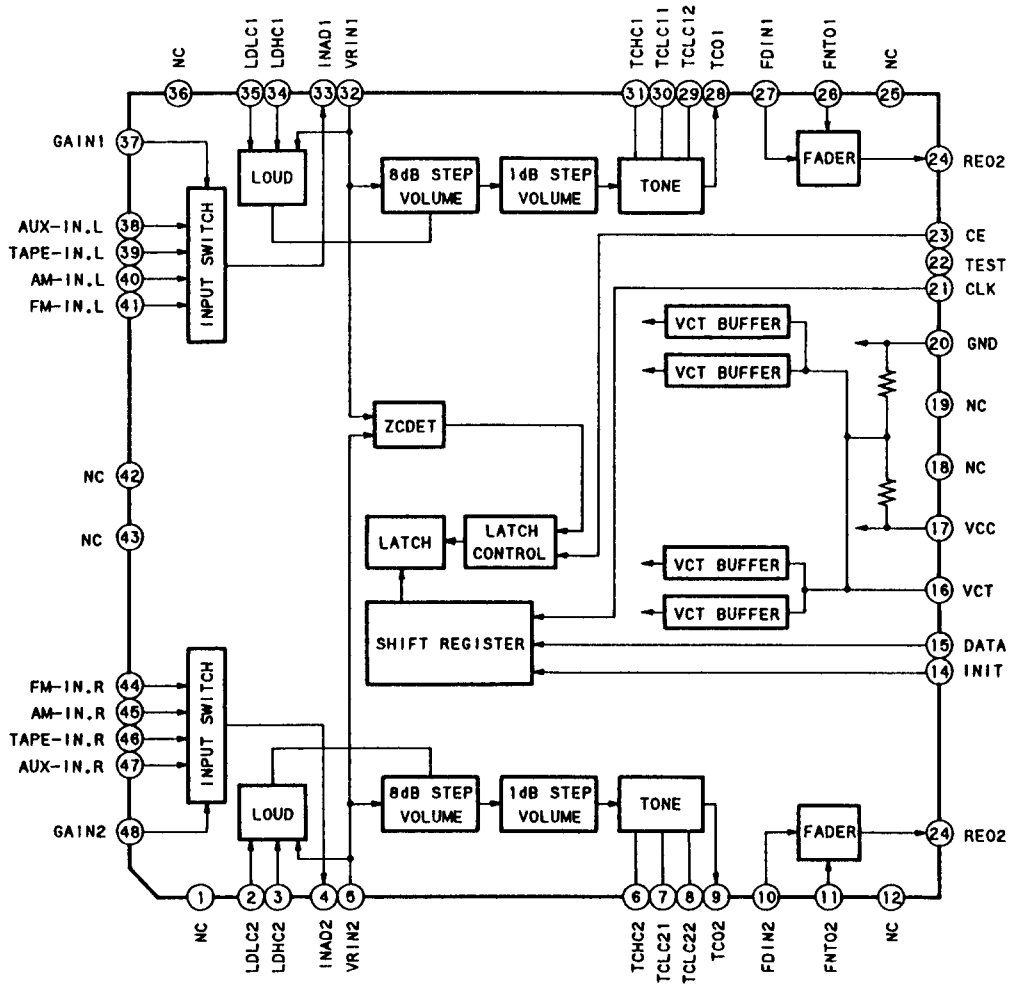
IC303 MM1175XFF



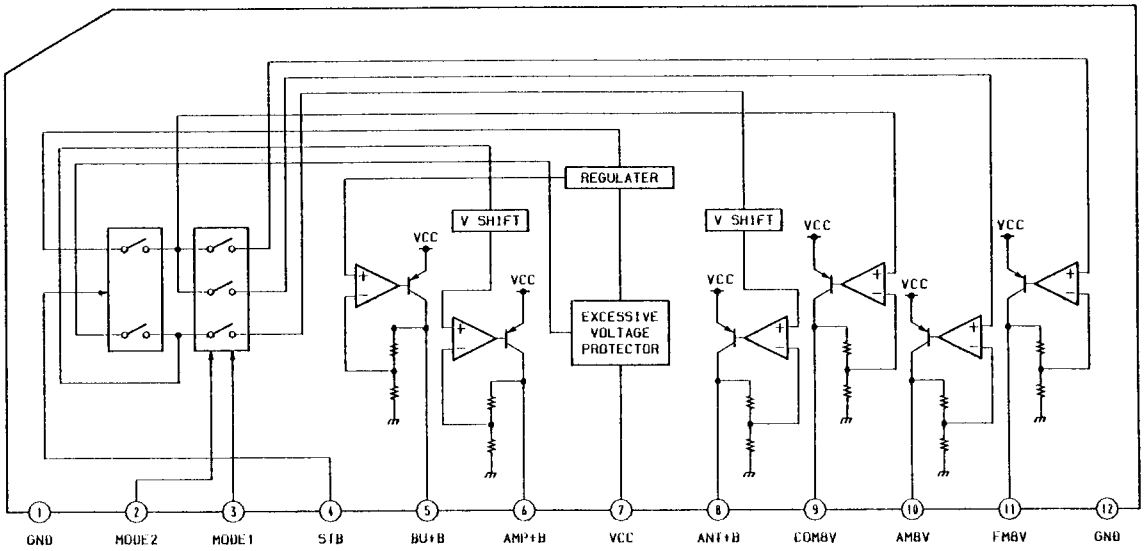
IC402 LB1638M



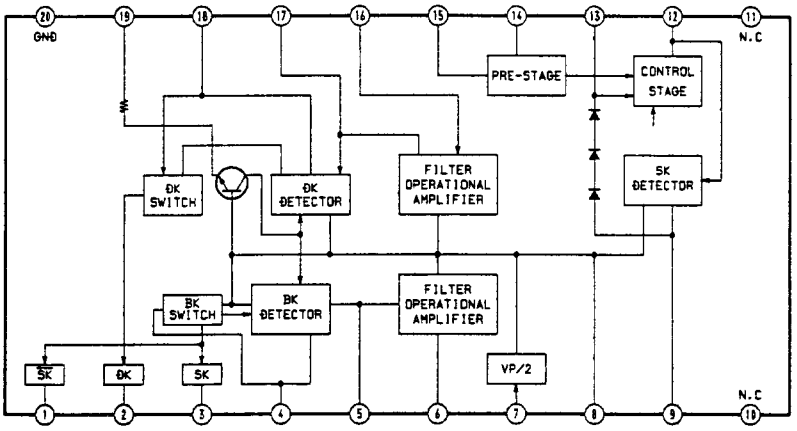
IC403 CXA1646Q



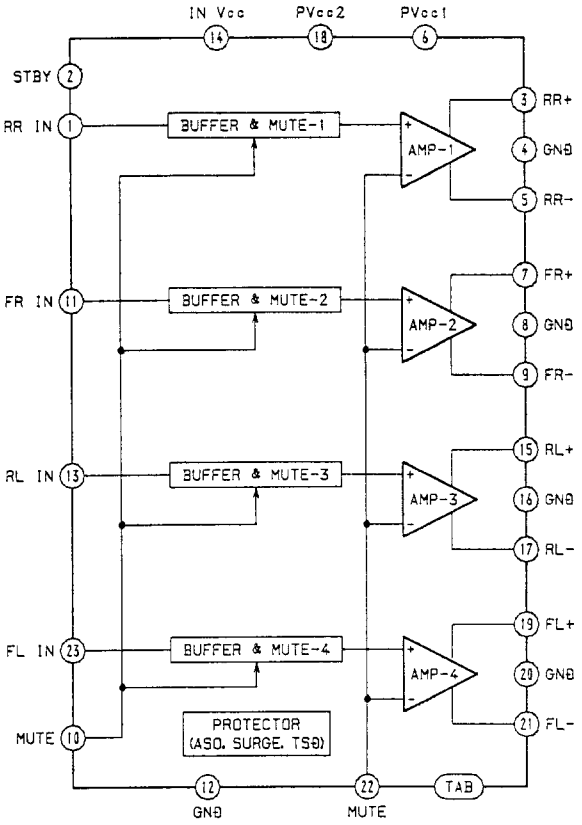
IC501 BA3910B-V2



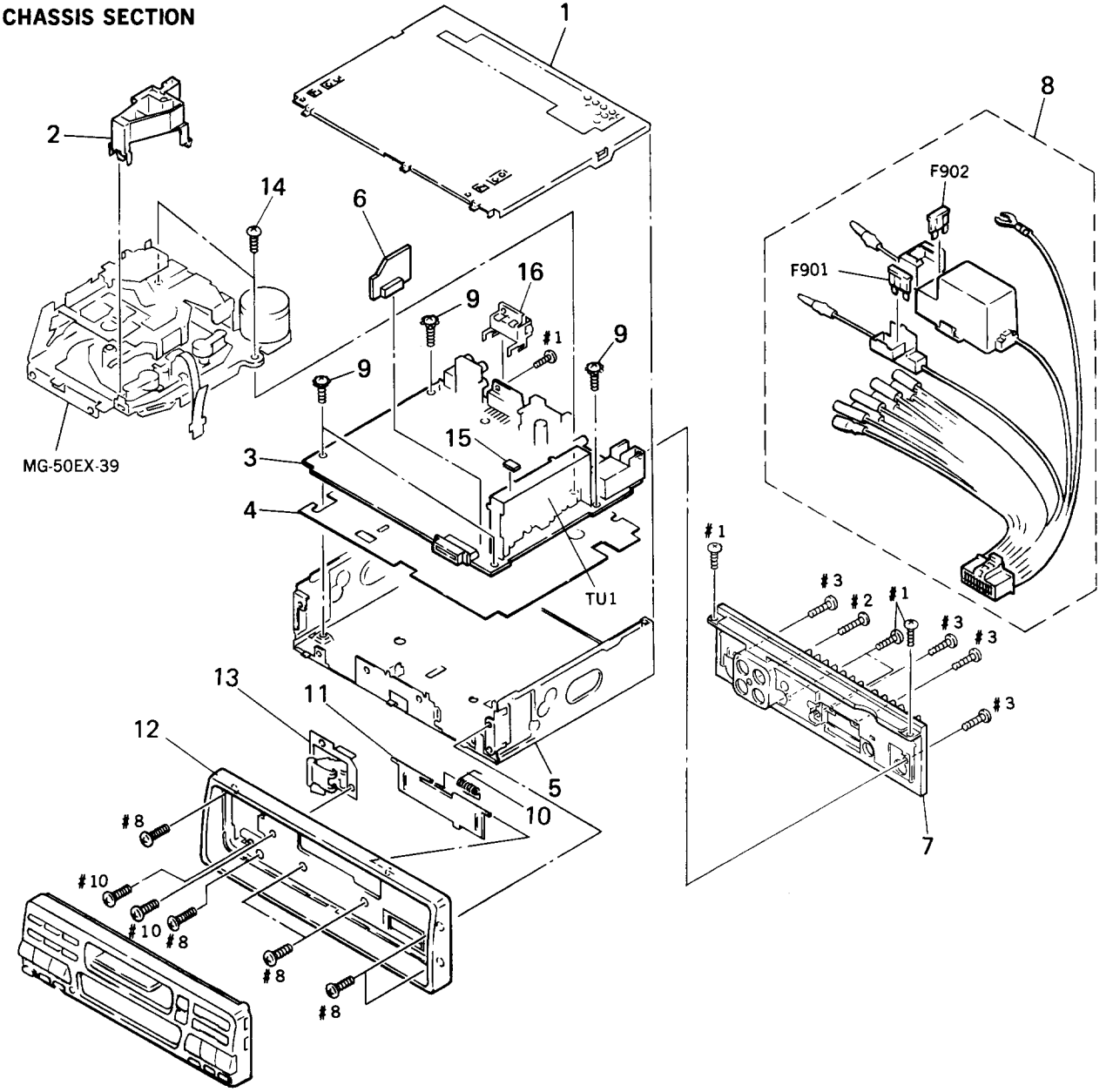
IC600 TDA1581T (XR-C212MK2 only)



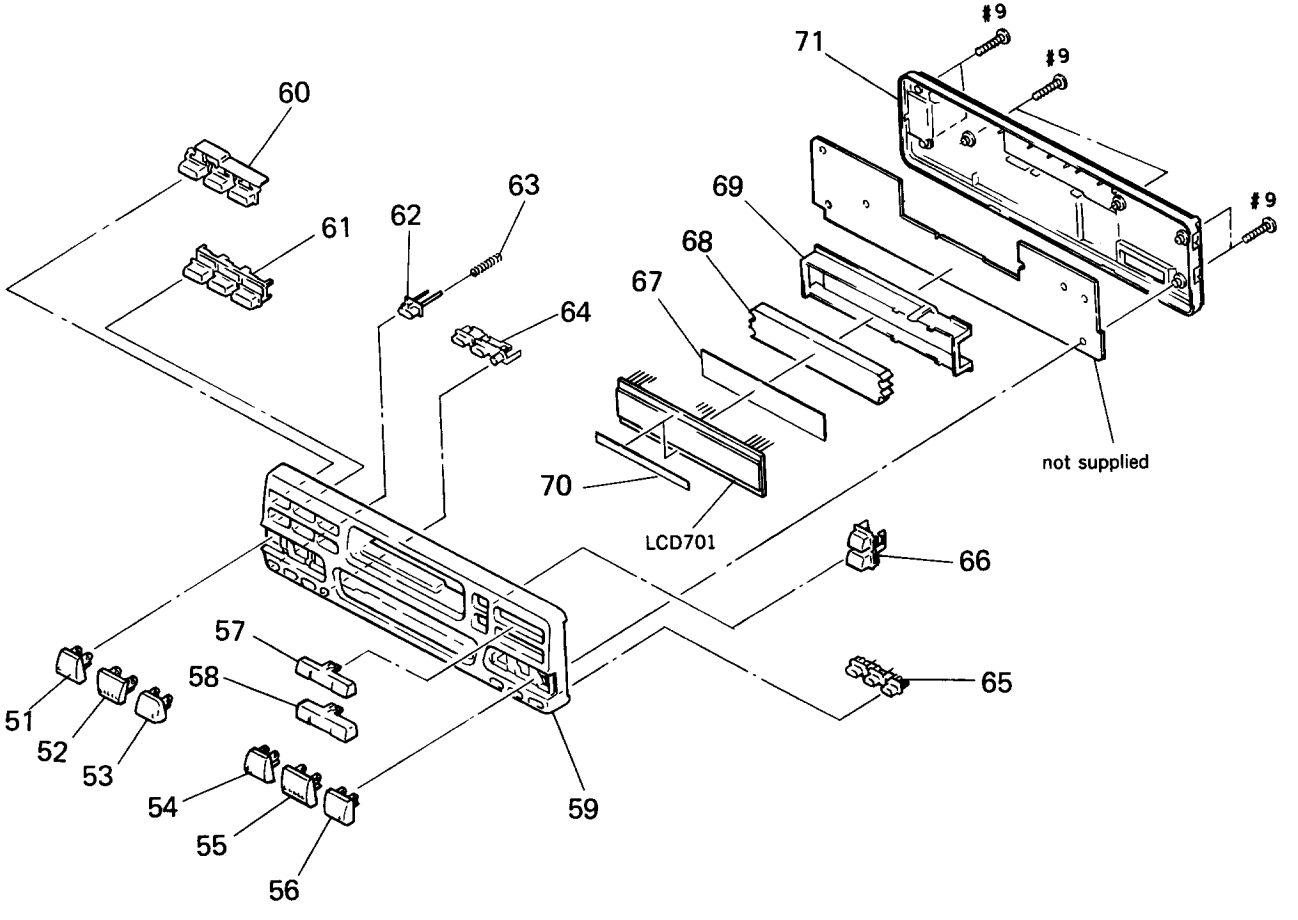
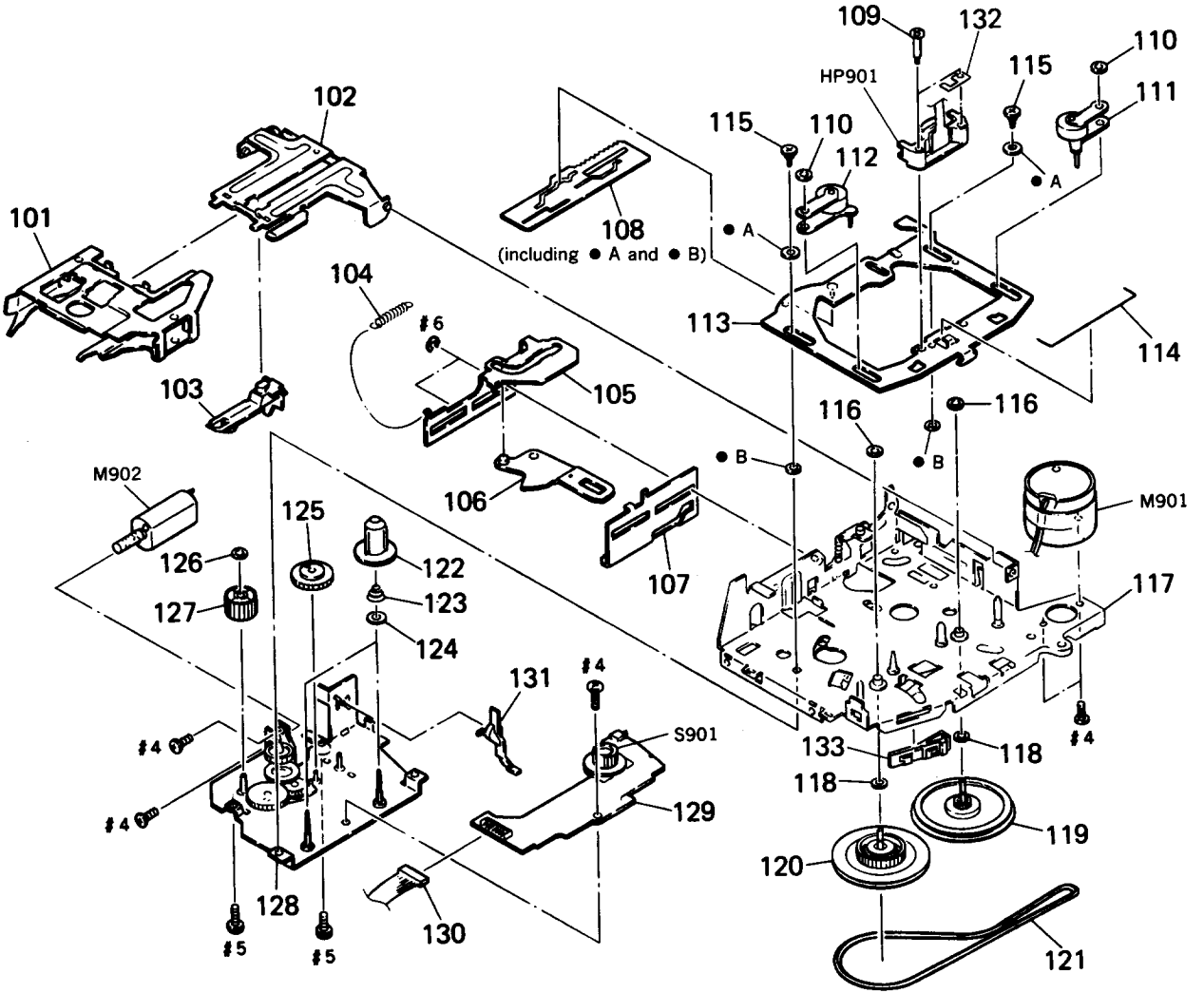
IC901 HA13151A



7-1. CHASSIS SECTION



7-2. FRONT PANEL SECTION



7-3. MECHANISM DECK SECTION (MG-50EX-39)